

FIG. 1-1

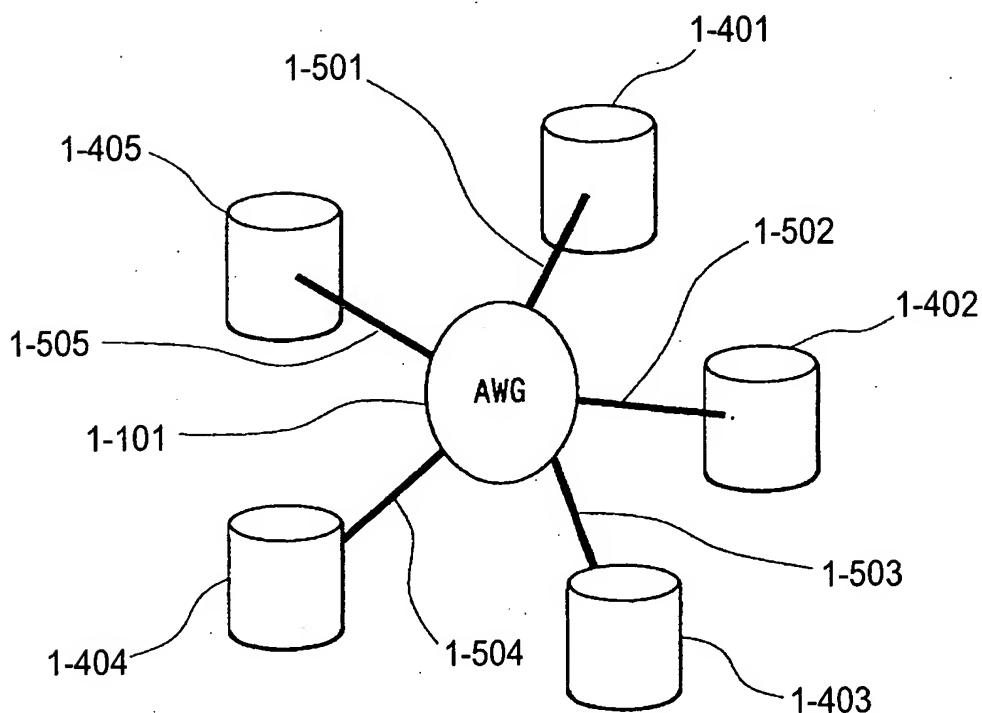


FIG. 1-2

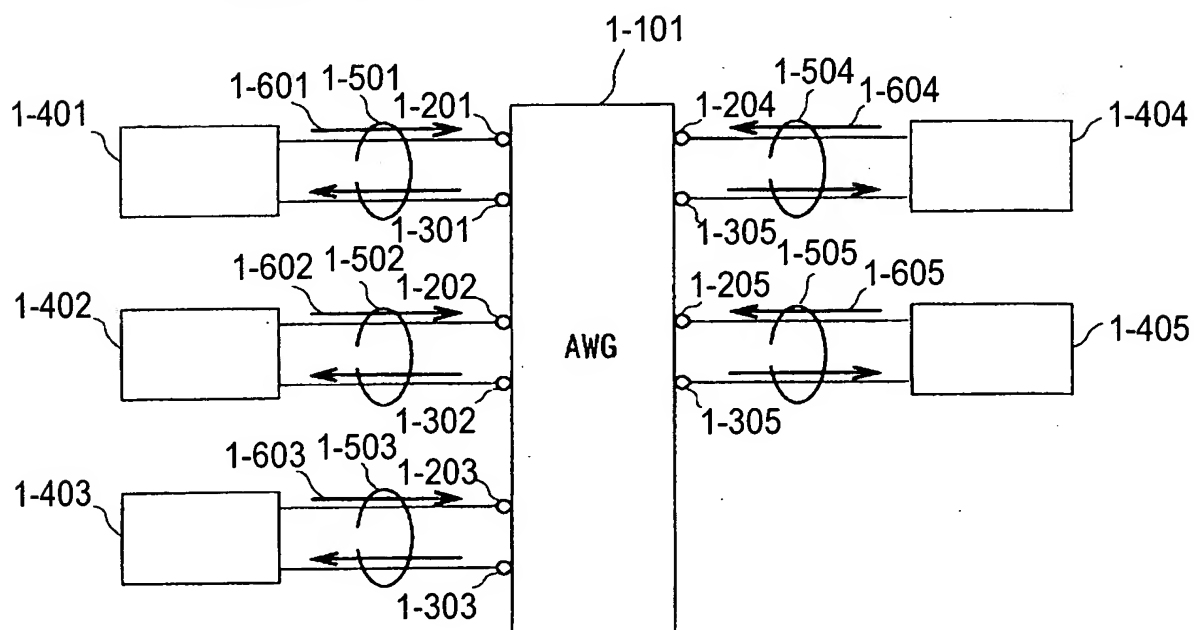
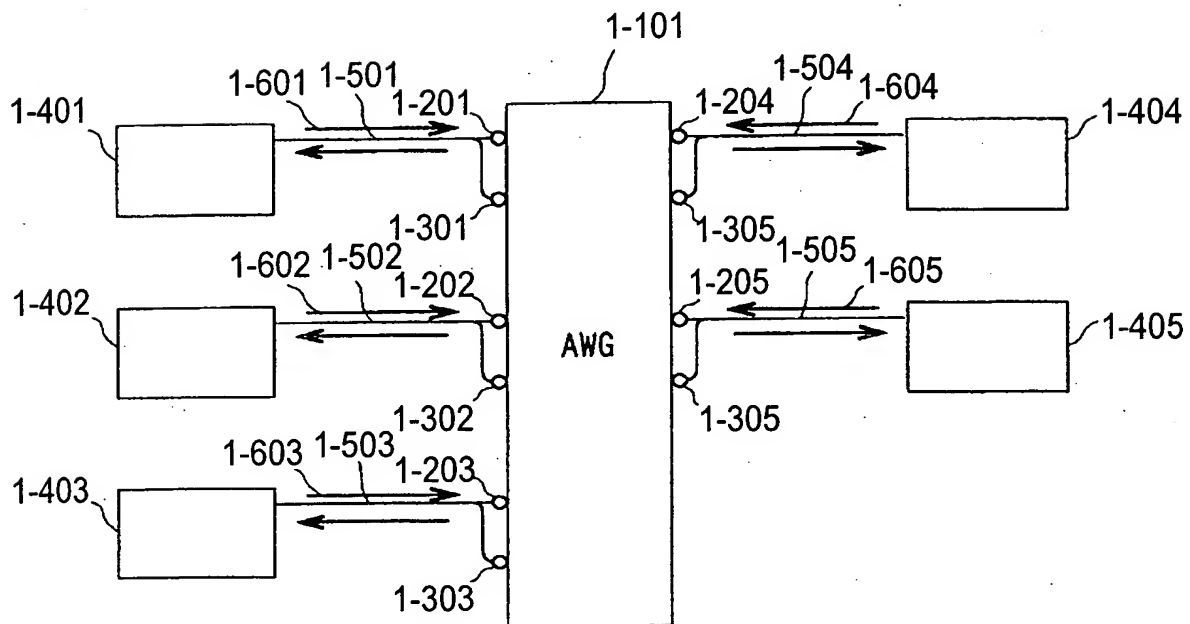


FIG. 1-3



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FIG. 1-4

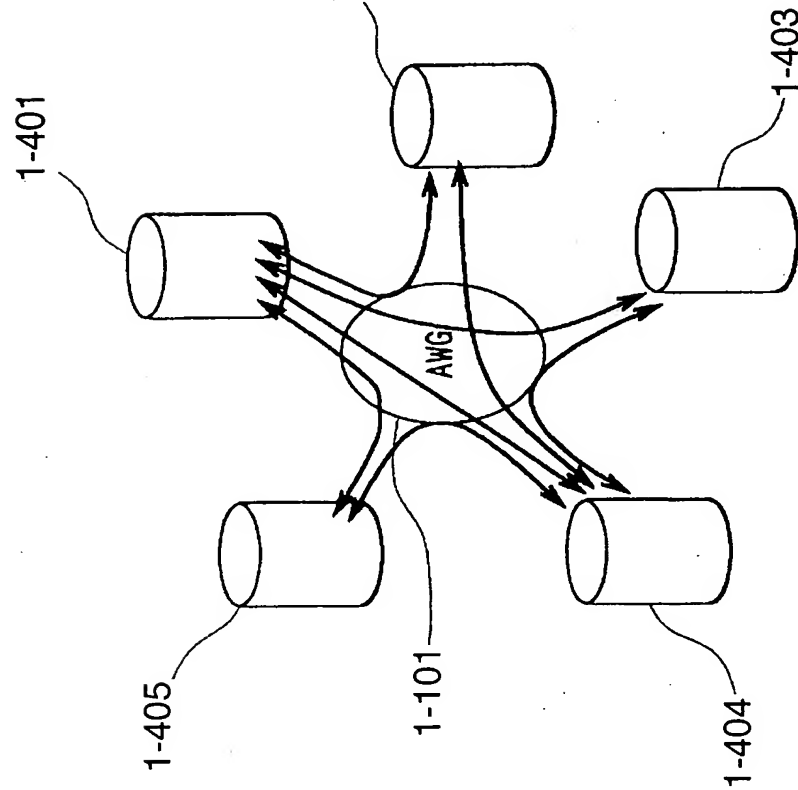
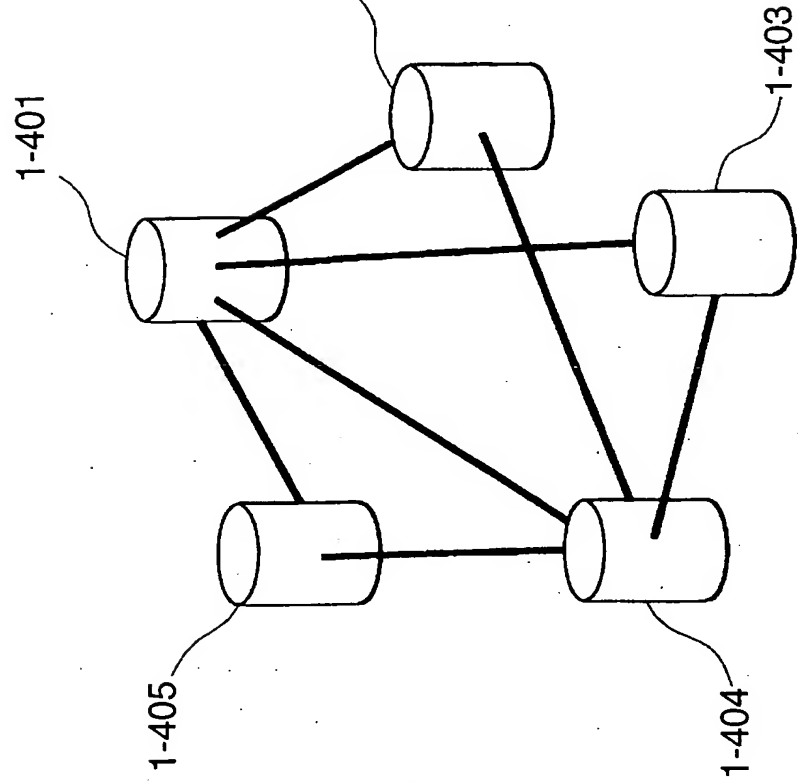


IMAGE OF OPTICAL SIGNAL ROUTE (WAVELENGTH PATH)



LOGICAL NETWORK TOPOLOGY STRUCTURE OF OPTICAL SIGNAL ROUTE

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FIG. 1-5

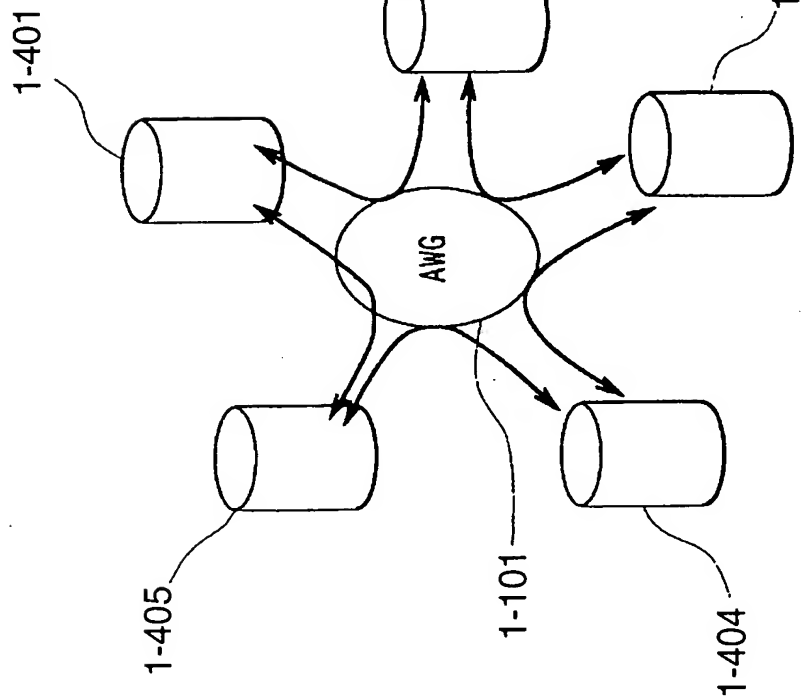
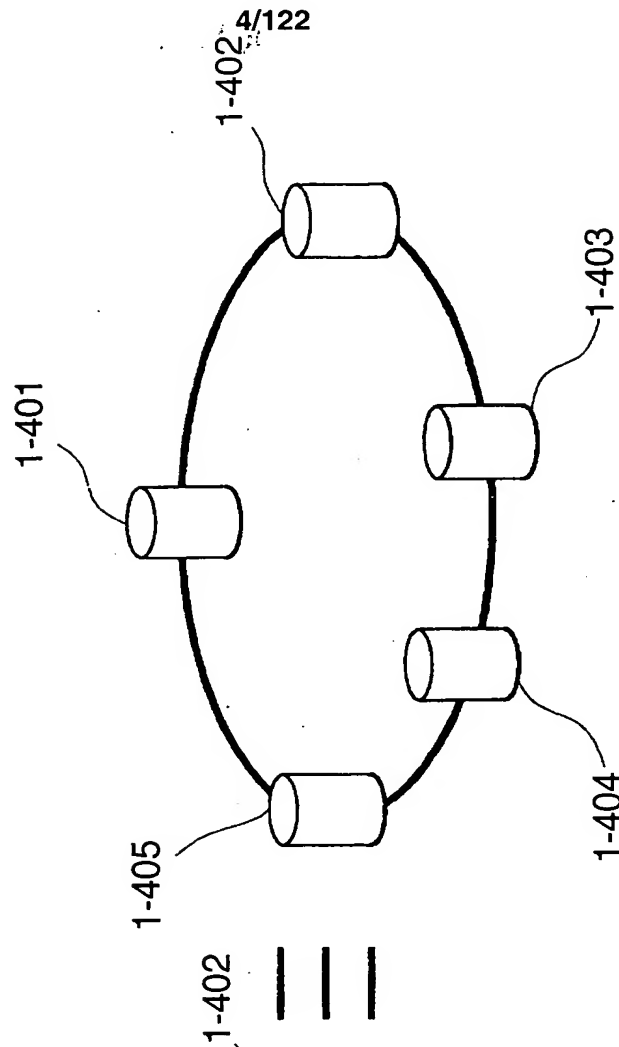


IMAGE OF OPTICAL SIGNAL ROUTE (WAVELENGTH PATH)



LOGICAL NETWORK TOPOLOGY STRUCTURE OF OPTICAL SIGNAL ROUTE

FIG. 1-6

		OPTICAL OUTPUT PORT				
		1-301	1-302	1-303	1-304	1-305
OPTICAL INPUT PORT	1-201	λ_1	λ_2	λ_3	λ_4	λ_5
	1-202	λ_5	λ_1	λ_2	λ_3	λ_4
	1-203	λ_4	λ_5	λ_1	λ_2	λ_3
	1-204	λ_3	λ_4	λ_5	λ_1	λ_2
	1-205	λ_2	λ_3	λ_4	λ_5	λ_1

STAR(MESH)-SHAPED LOGICAL NETWORK TOPOLOGY

FIG. 1-7

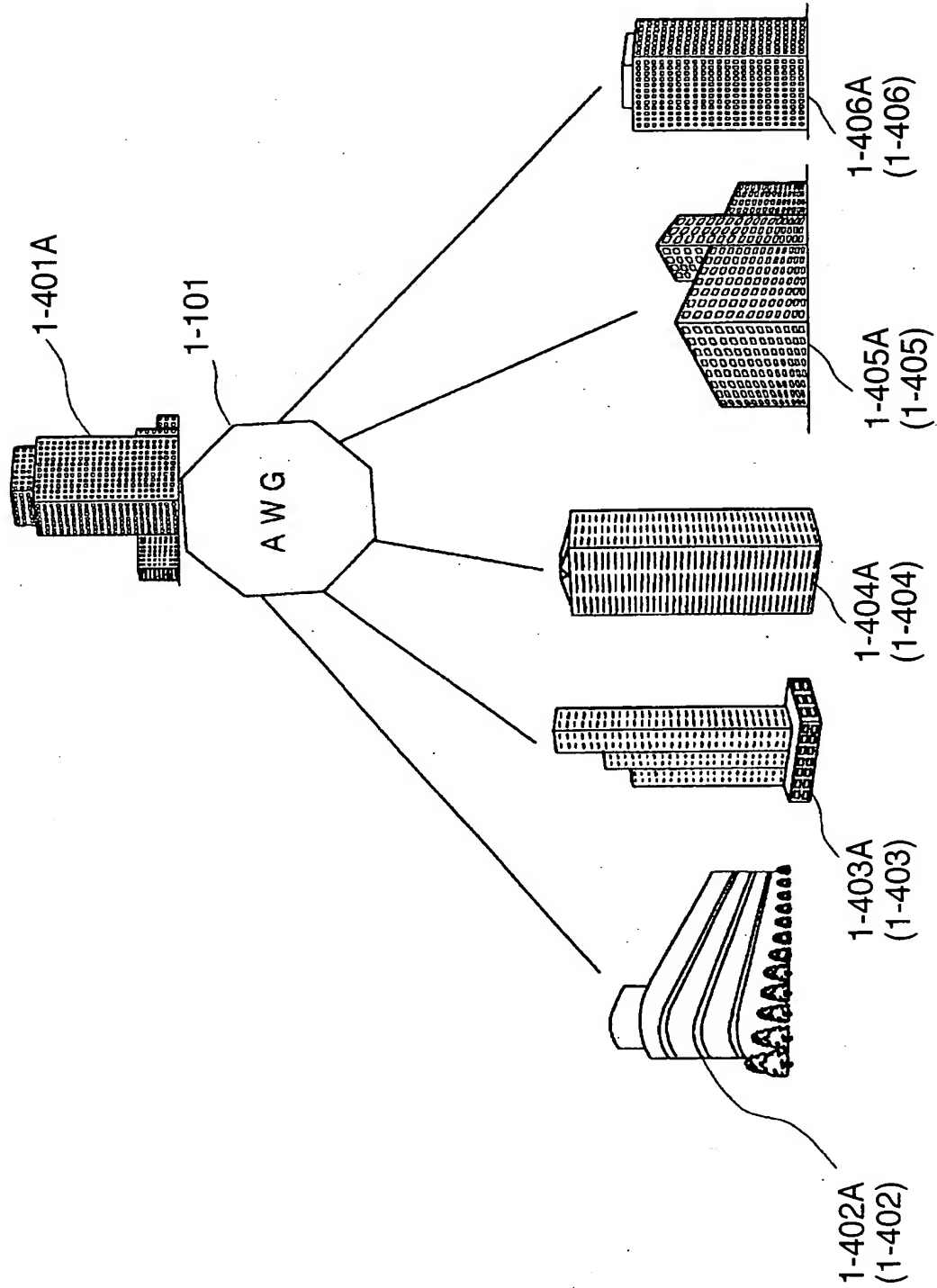
		OPTICAL OUTPUT PORT				
		1-301	1-302	1-303	1-304	1-305
OPTICAL INPUT PORT	1-201	λ_1	λ_2	λ_3	λ_4	λ_5
	1-202	λ_5	λ_1	λ_2	λ_3	λ_4
	1-203	λ_4	λ_5	λ_1	λ_2	λ_3
	1-204	λ_3	λ_4	λ_5	λ_1	λ_2
	1-205	λ_2	λ_3	λ_4	λ_5	λ_1

RING-SHAPED LOGICAL NETWORK TOPOLOGY

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FIG. 1-8



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FIG. 1-9

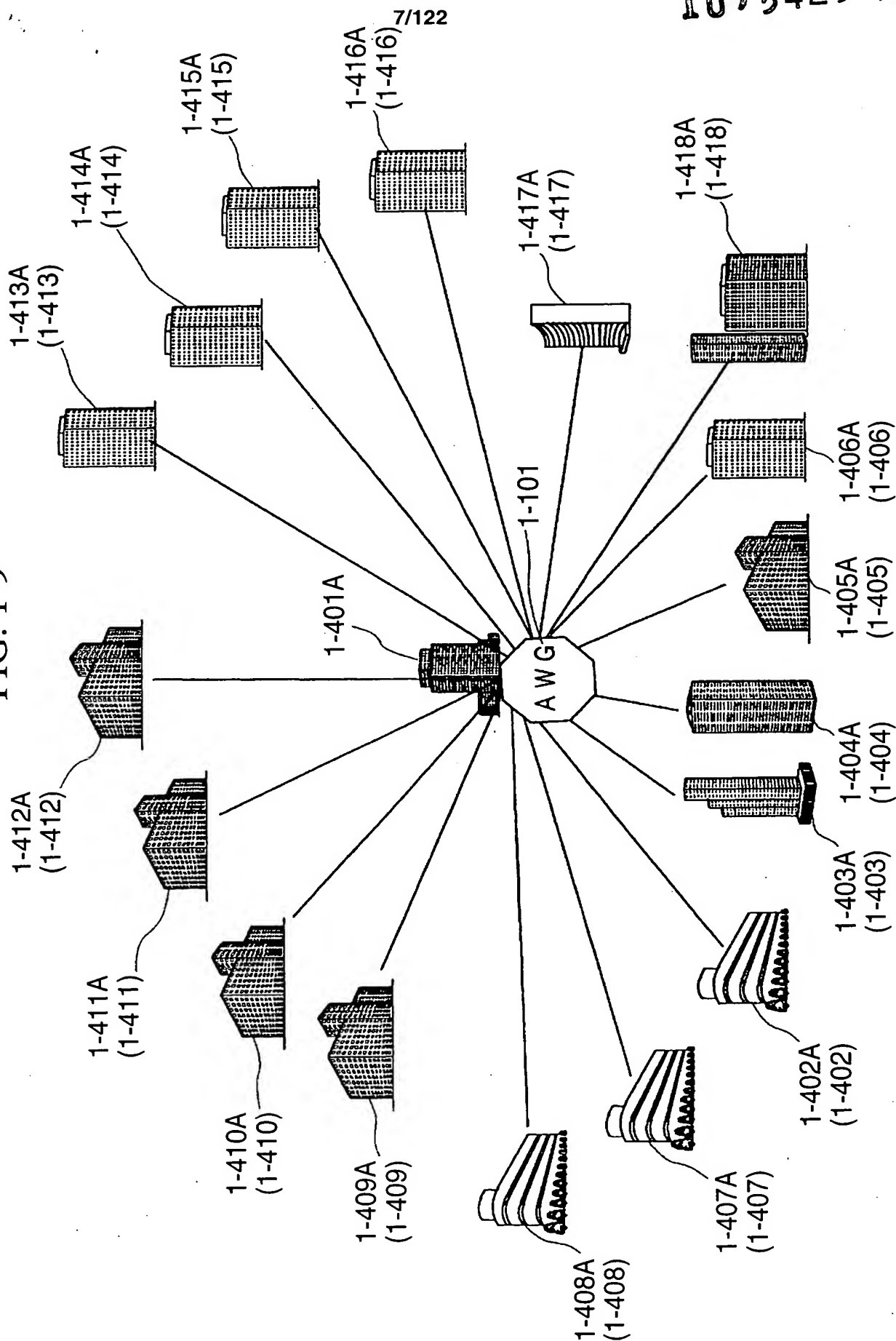


FIG. 1-10

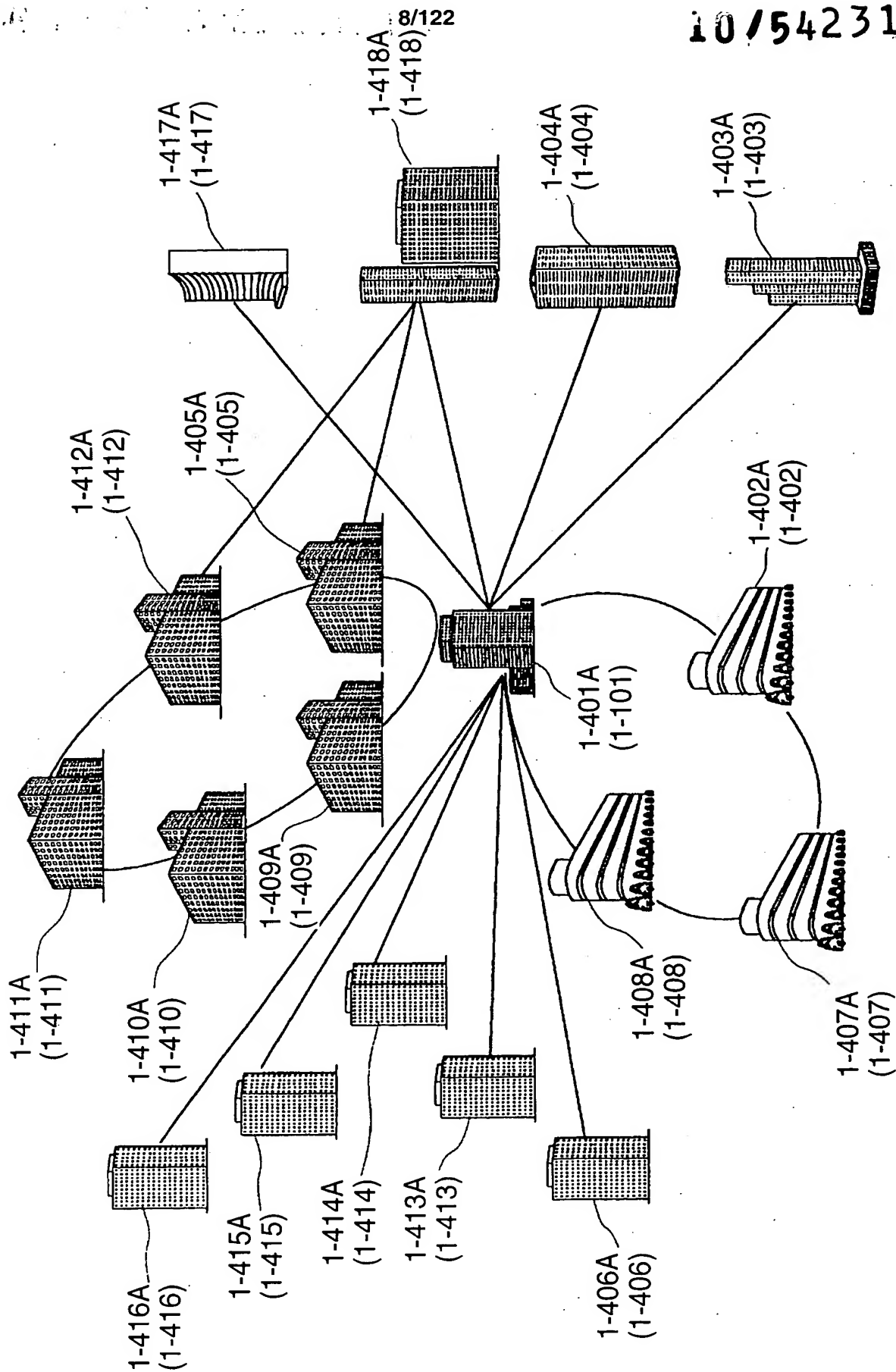
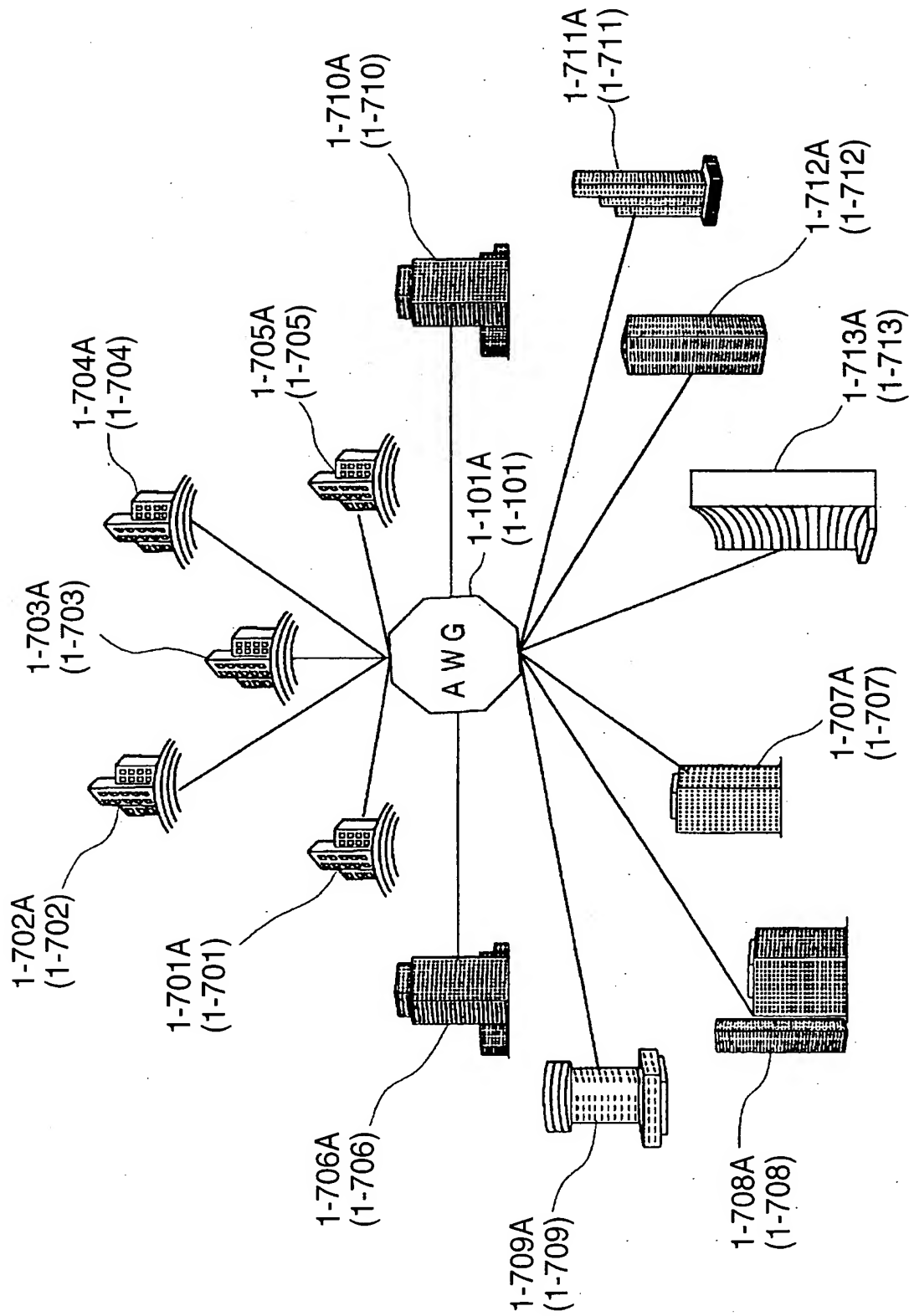


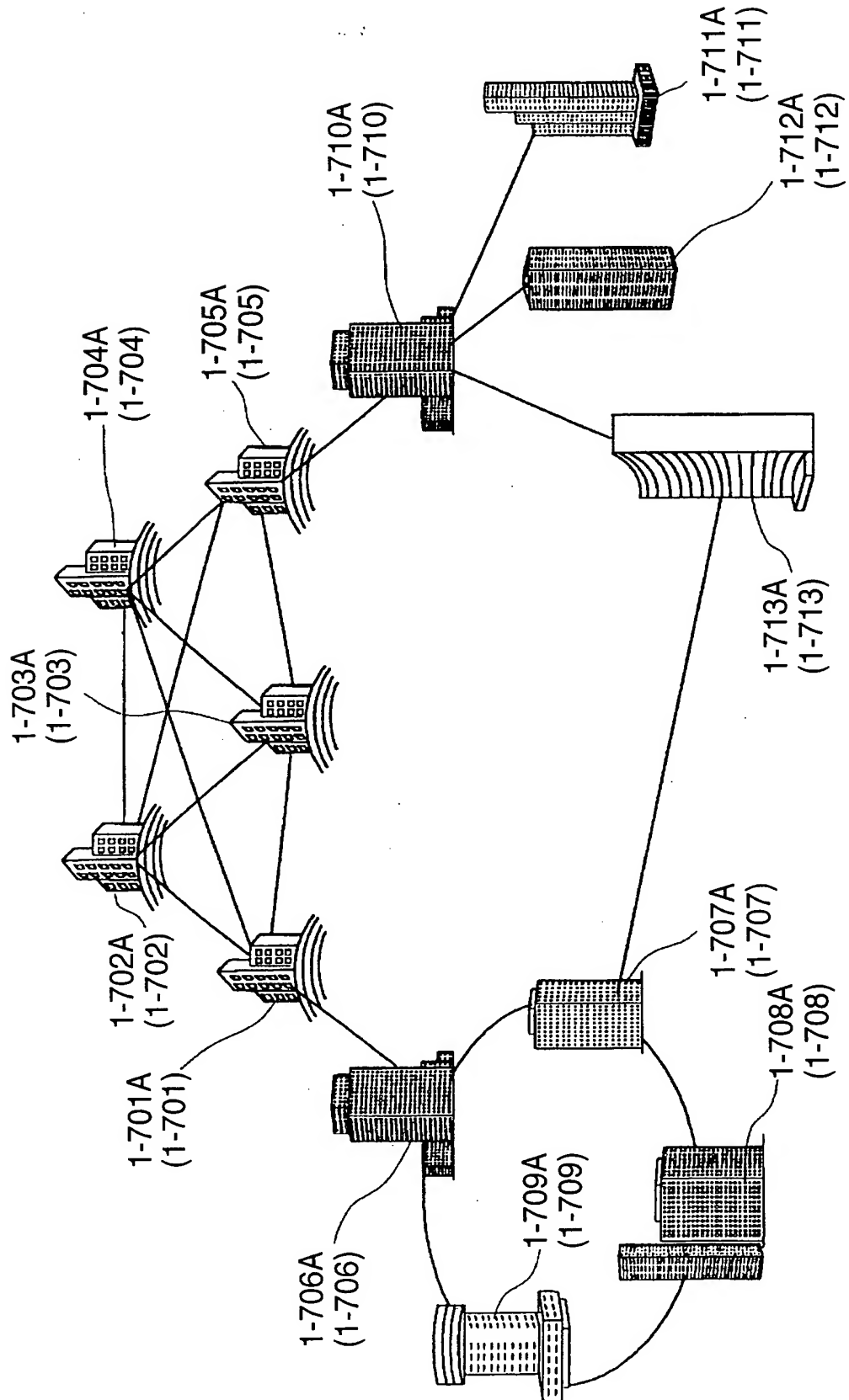
FIG. 1-11



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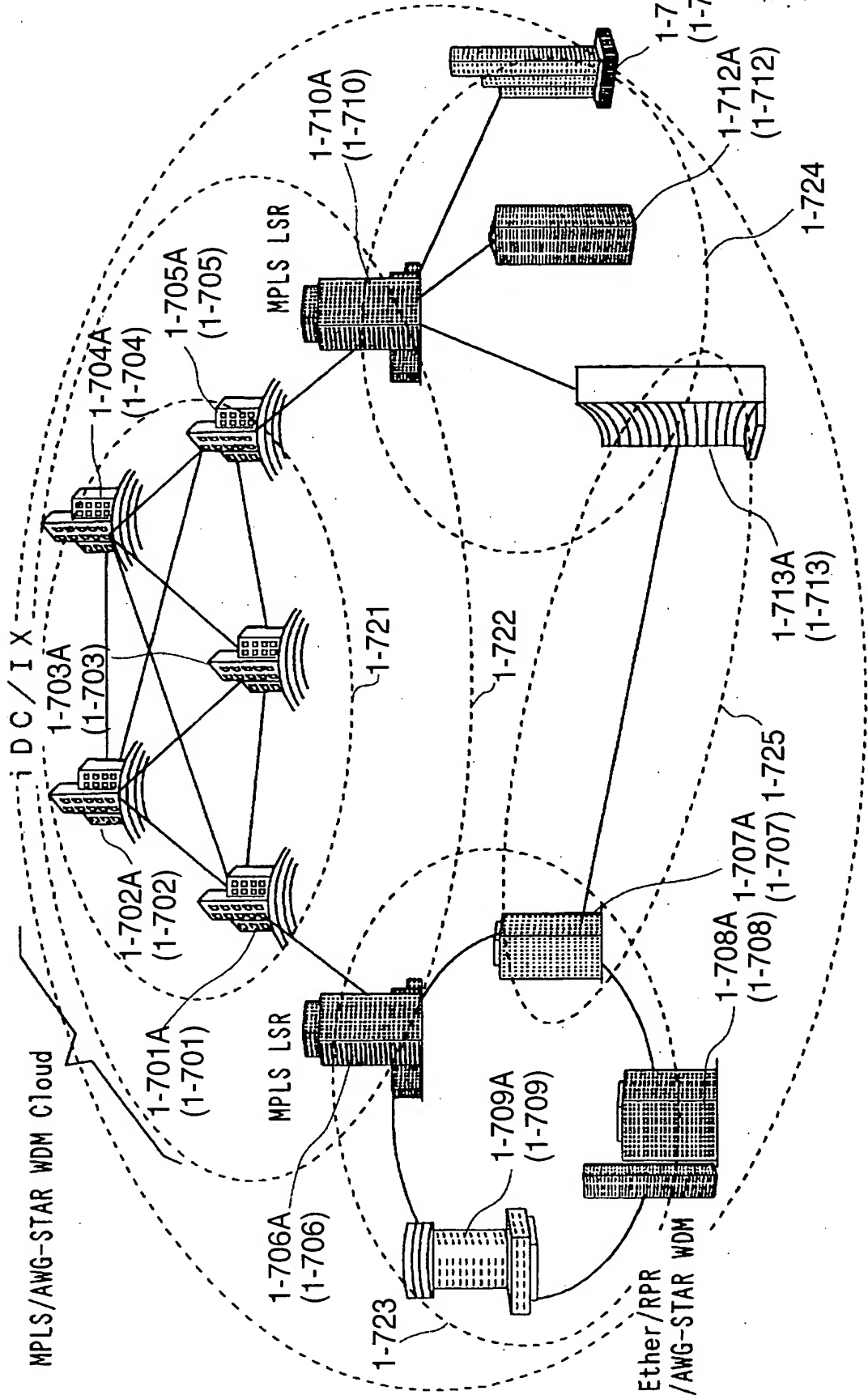
FIG. 1-12



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FIG. 1-13



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FIG. 1-14

SPECIFIC NUMBER OF NETWORK-NODE EQUIPMENT	OPTICAL OUTPUT PORT															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$
2	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$
3	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$
4	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$
5	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
6	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$
7	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$
8	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$
9	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$
10	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
11	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$
12	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$
13	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$
14	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$
15	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$
16	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$

OPTICAL INPUT PORT

FIG. 1-15

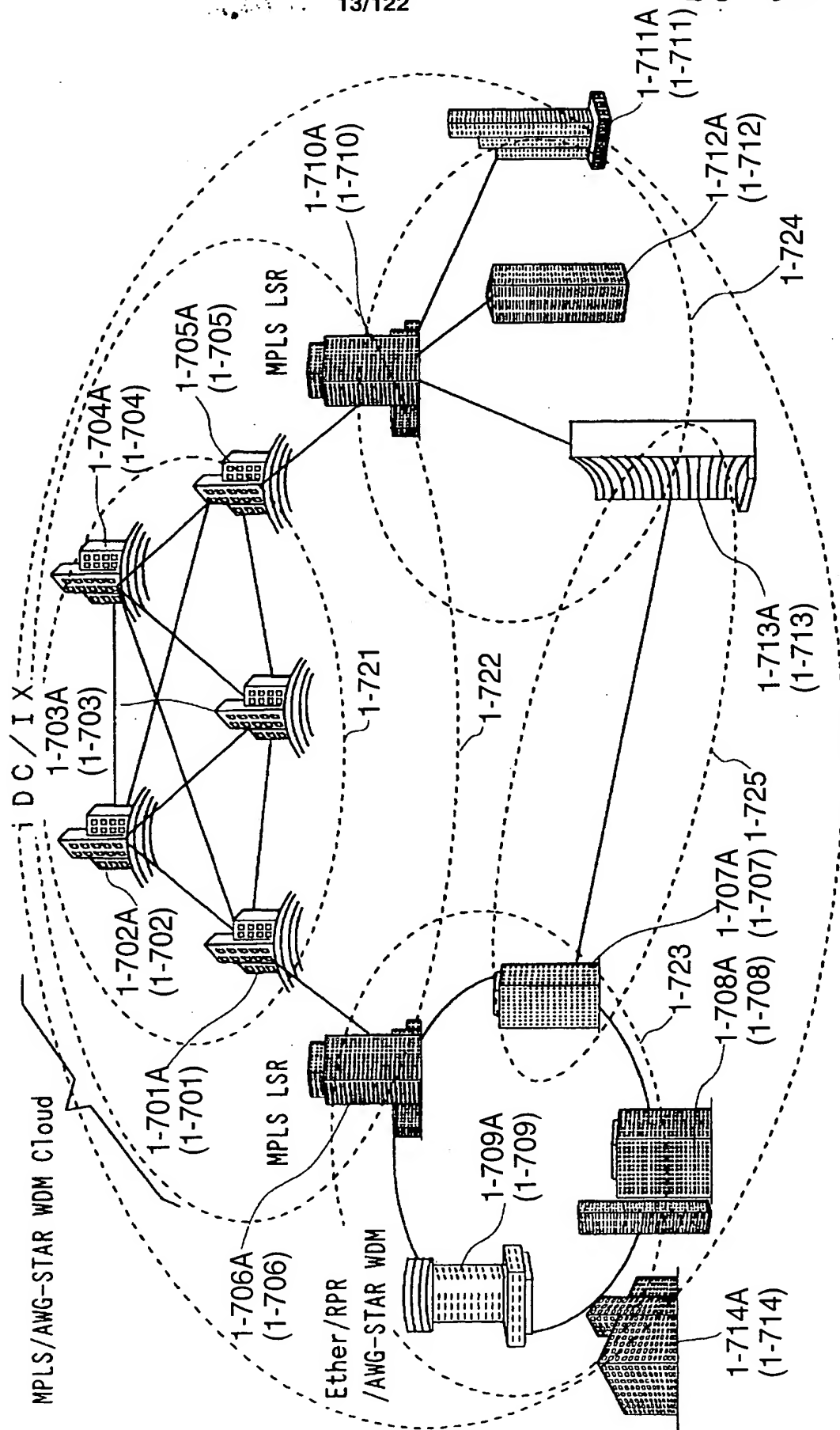


FIG. 1-16

OPTICAL OUTPUT PORT

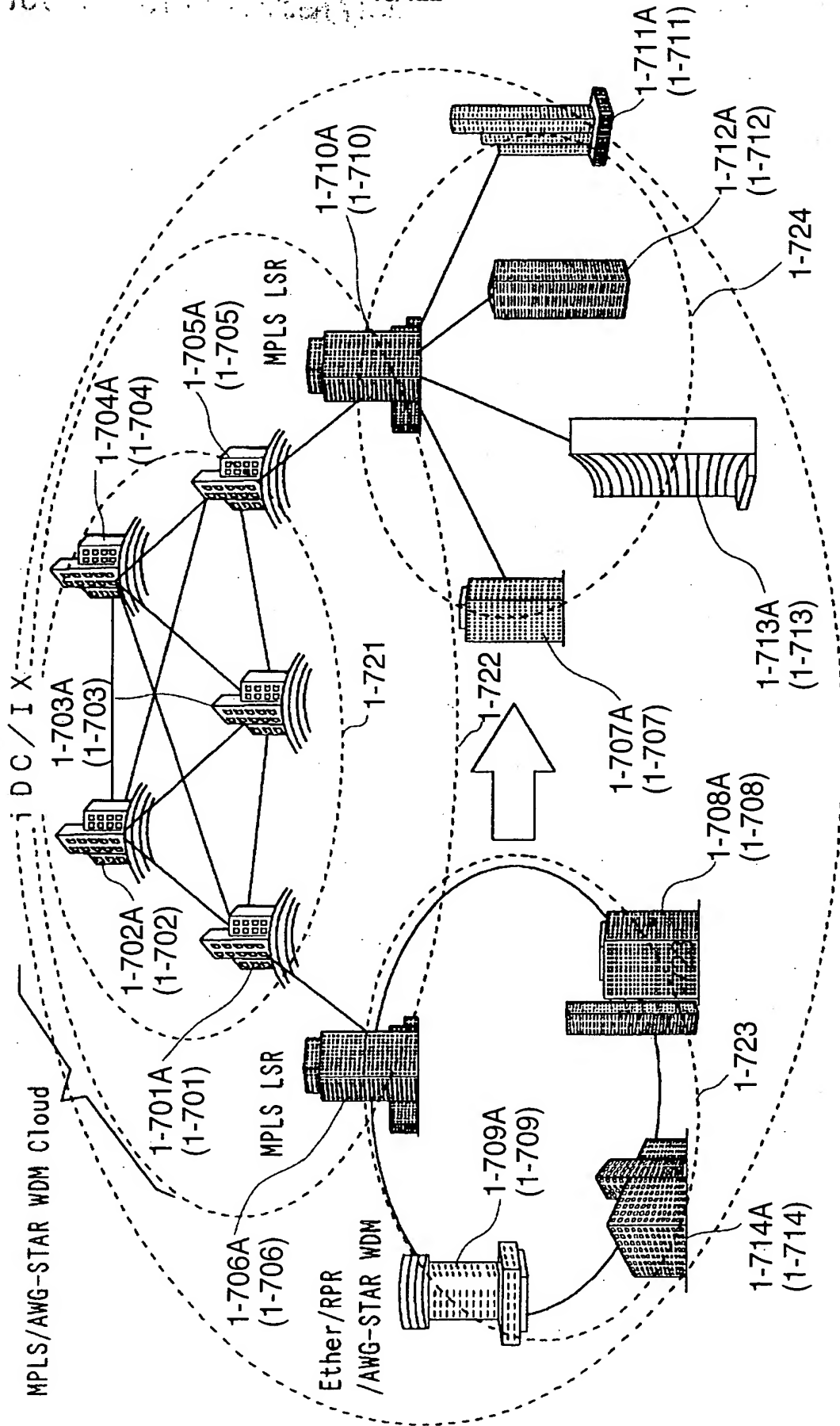
SPECIFIC NUMBER OF NETWORK-NODE EQUIPMENT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$
2	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$
3	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$
4	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$
5	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
6	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$
7	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$
8	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$
9	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$
10	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
11	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$
12	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$
13	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$
14	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$
15	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$
16	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$

OPTICAL INPUT PORT

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FIG. 1-17



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FIG. 1-18

OPTICAL OUTPUT PORT

SPECIFIC NUMBER OF NETWORK-NODE EQUIPMENT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$
2	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$
3	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$
4	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$
5	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
6	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$
7	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$
8	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$
9	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$
10	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
11	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$
12	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$
13	$\lambda 13$	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$
14	$\lambda 14$	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$
15	$\lambda 15$	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$
16	$\lambda 16$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$	$\lambda 10$	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 15$

OPTICAL INPUT PORT

FIG. 1-19

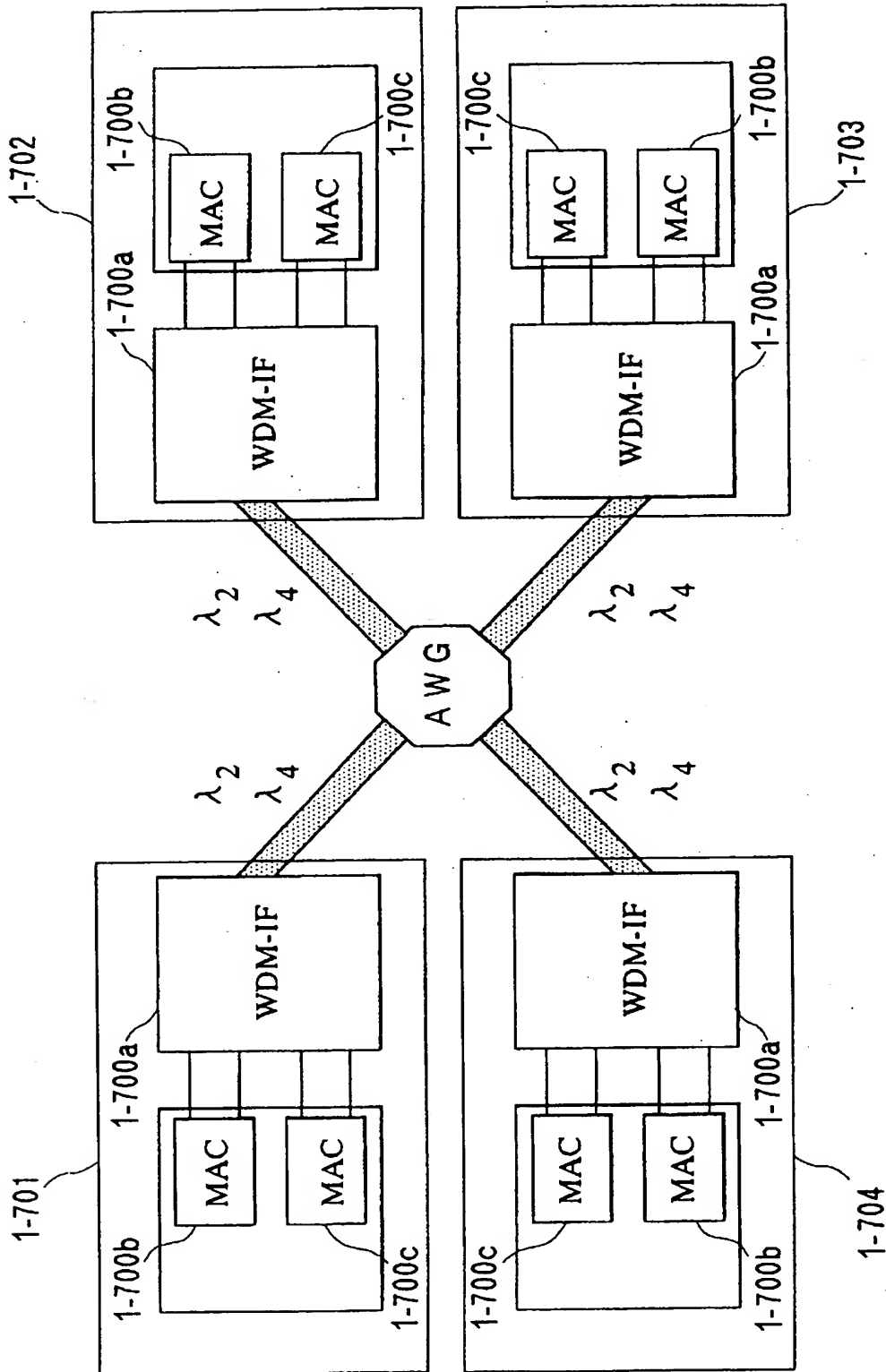


FIG. 1-20

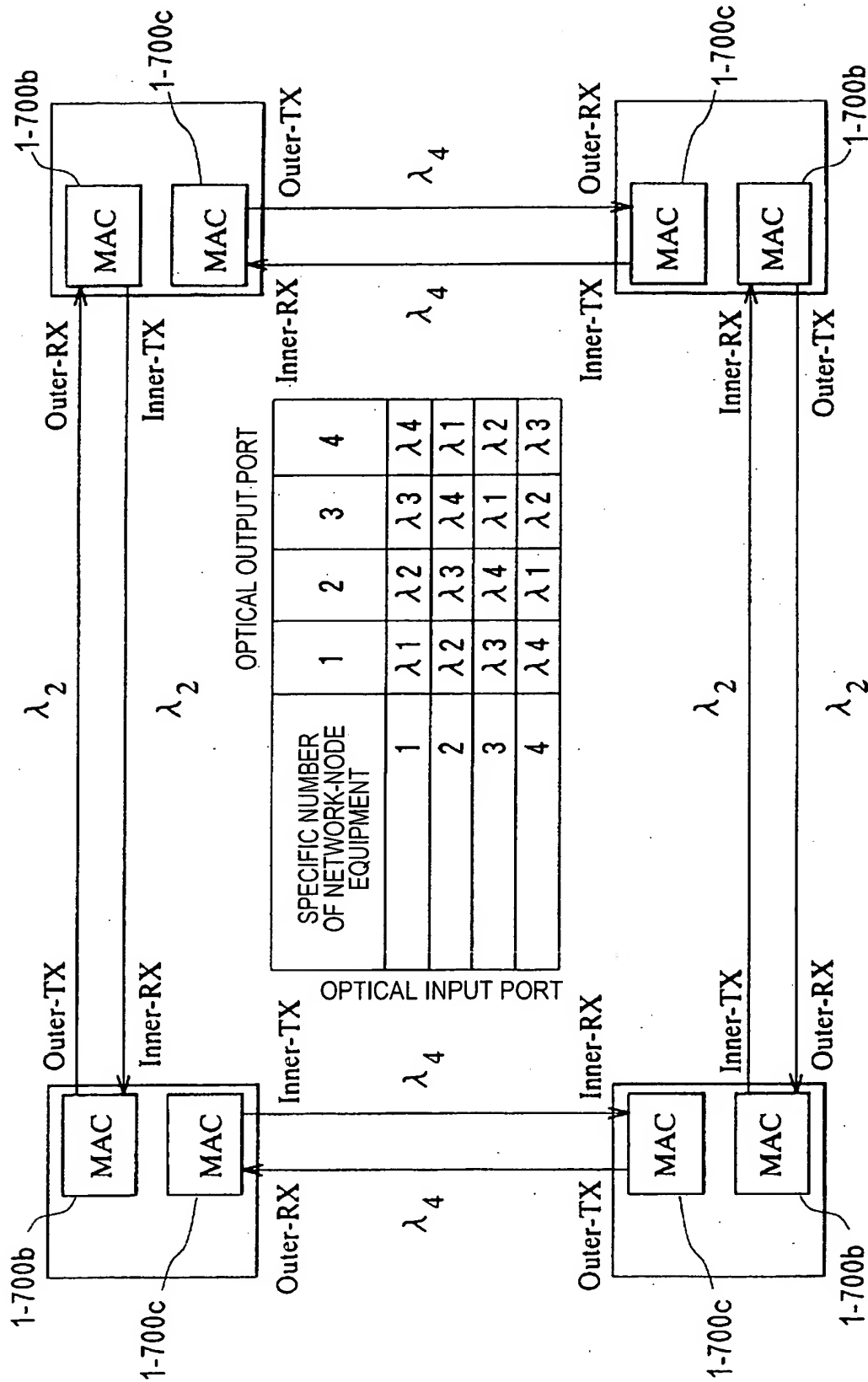


FIG. 1-21

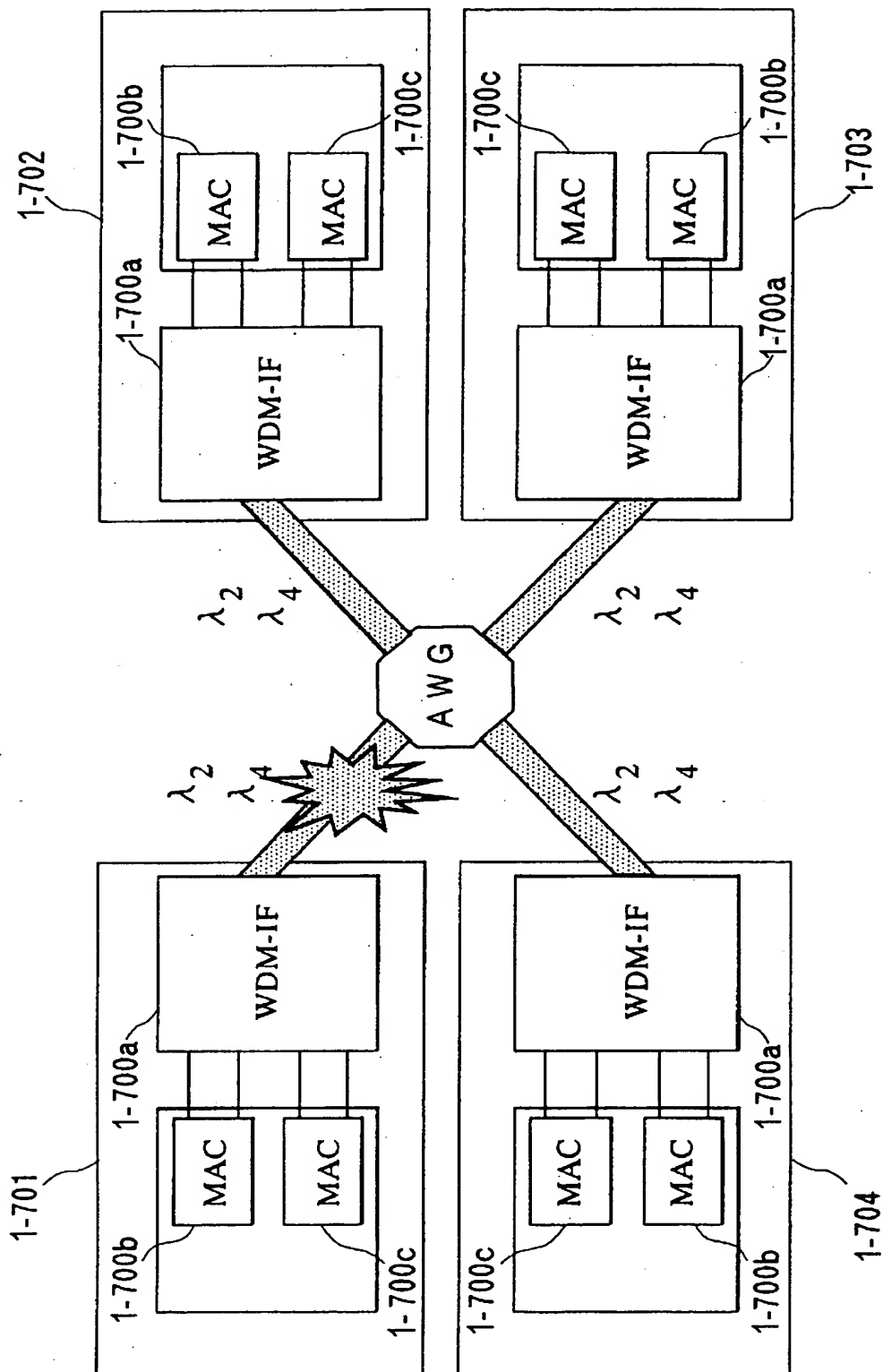


FIG. 1-22

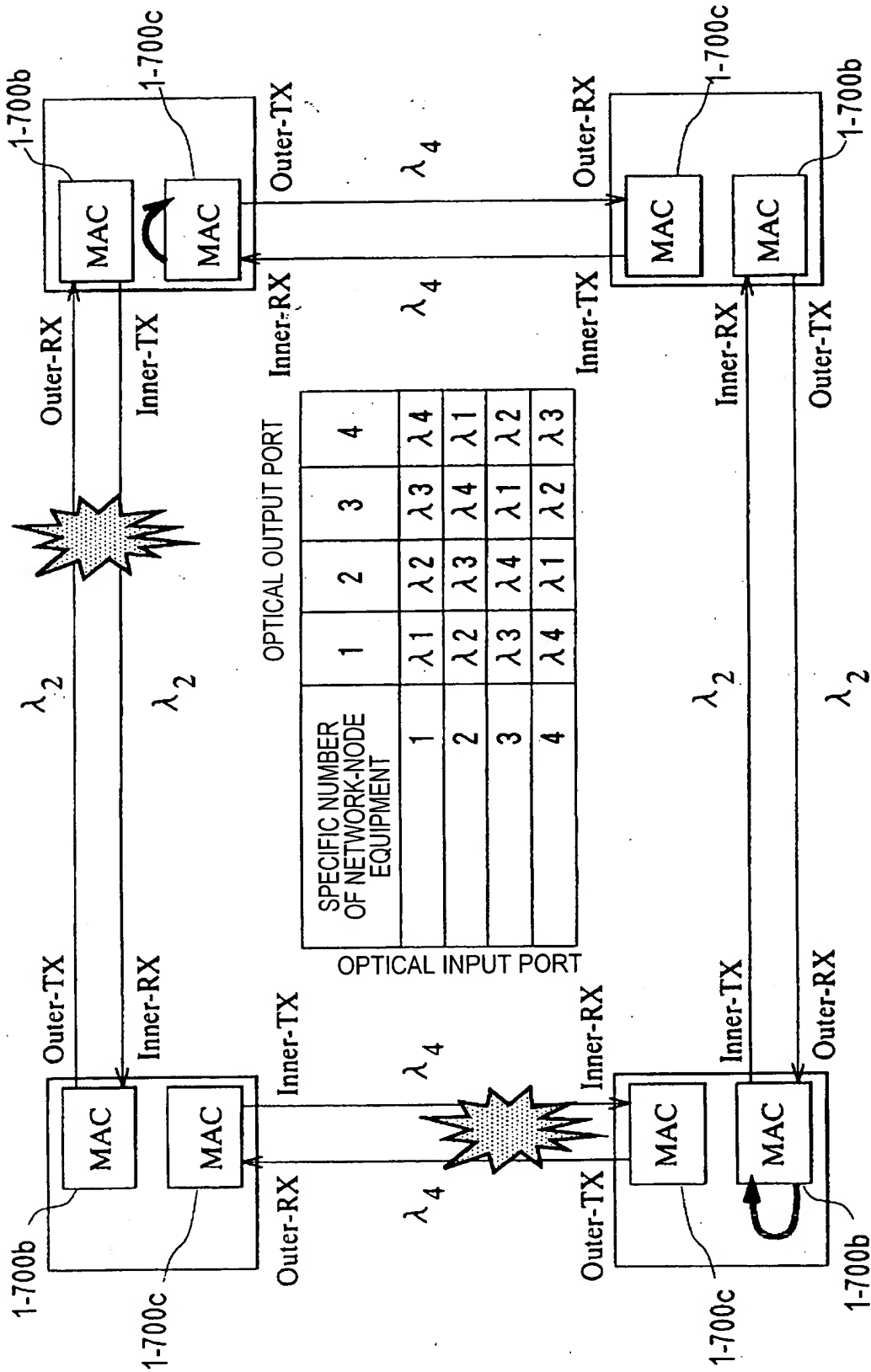
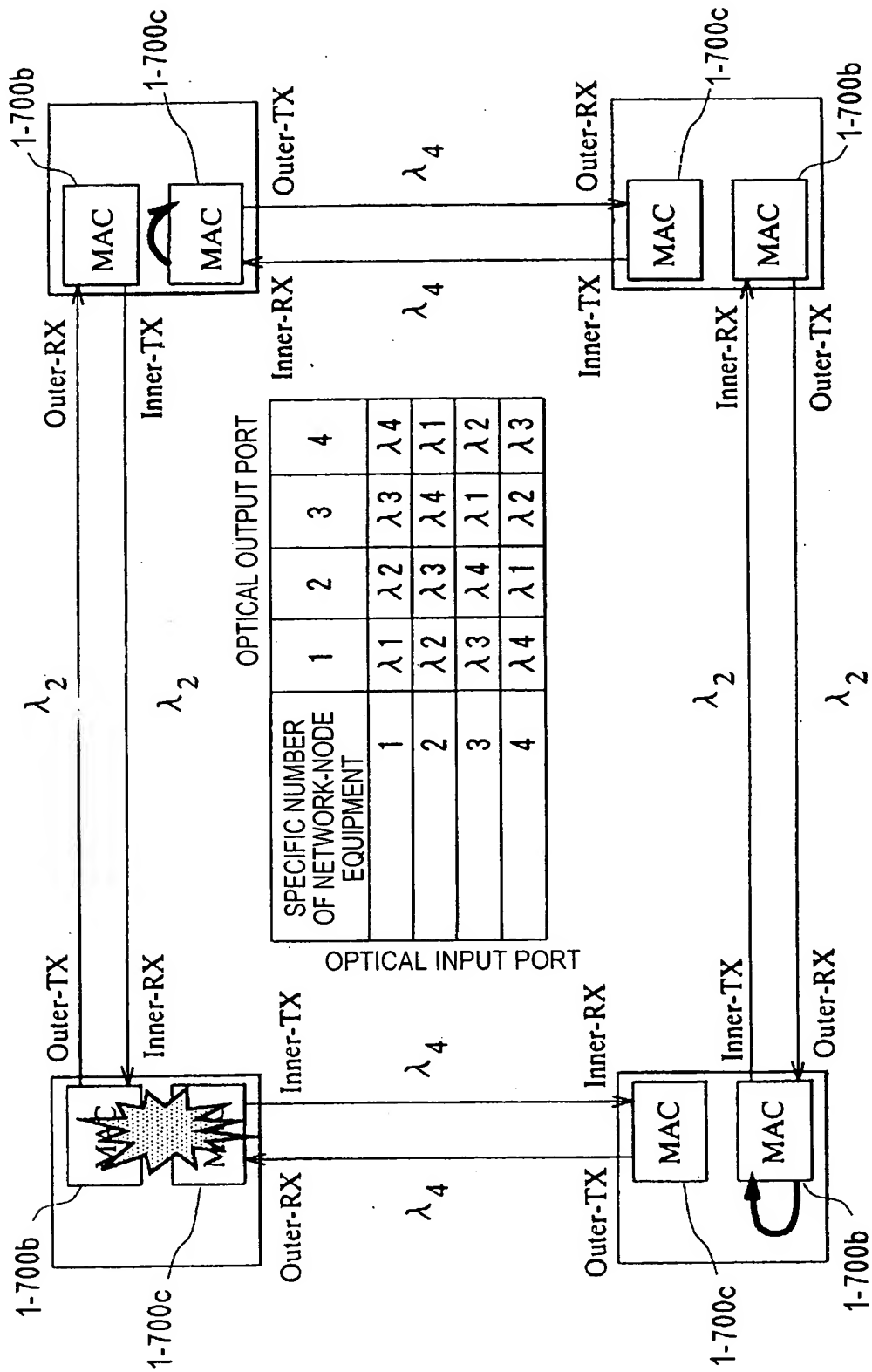
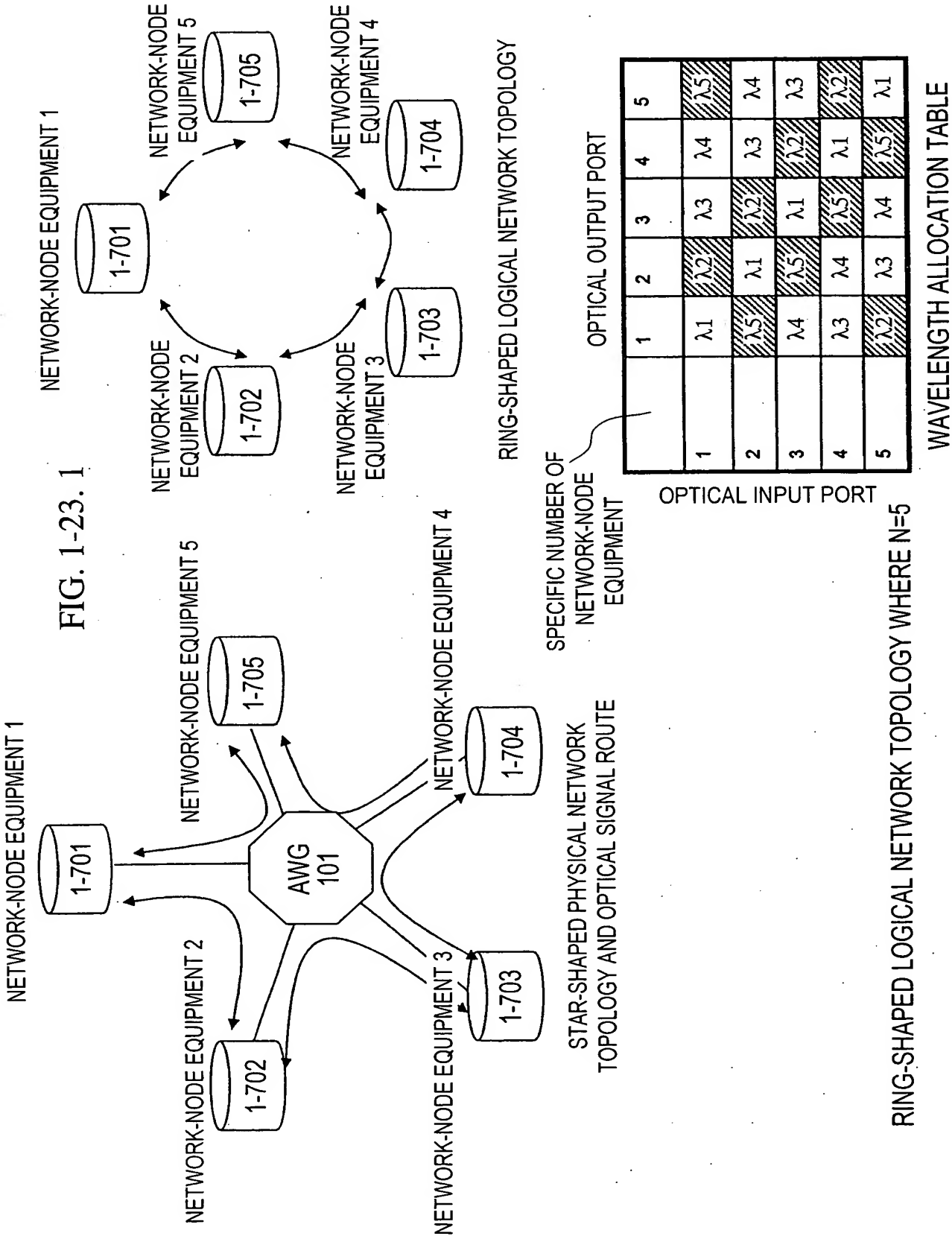
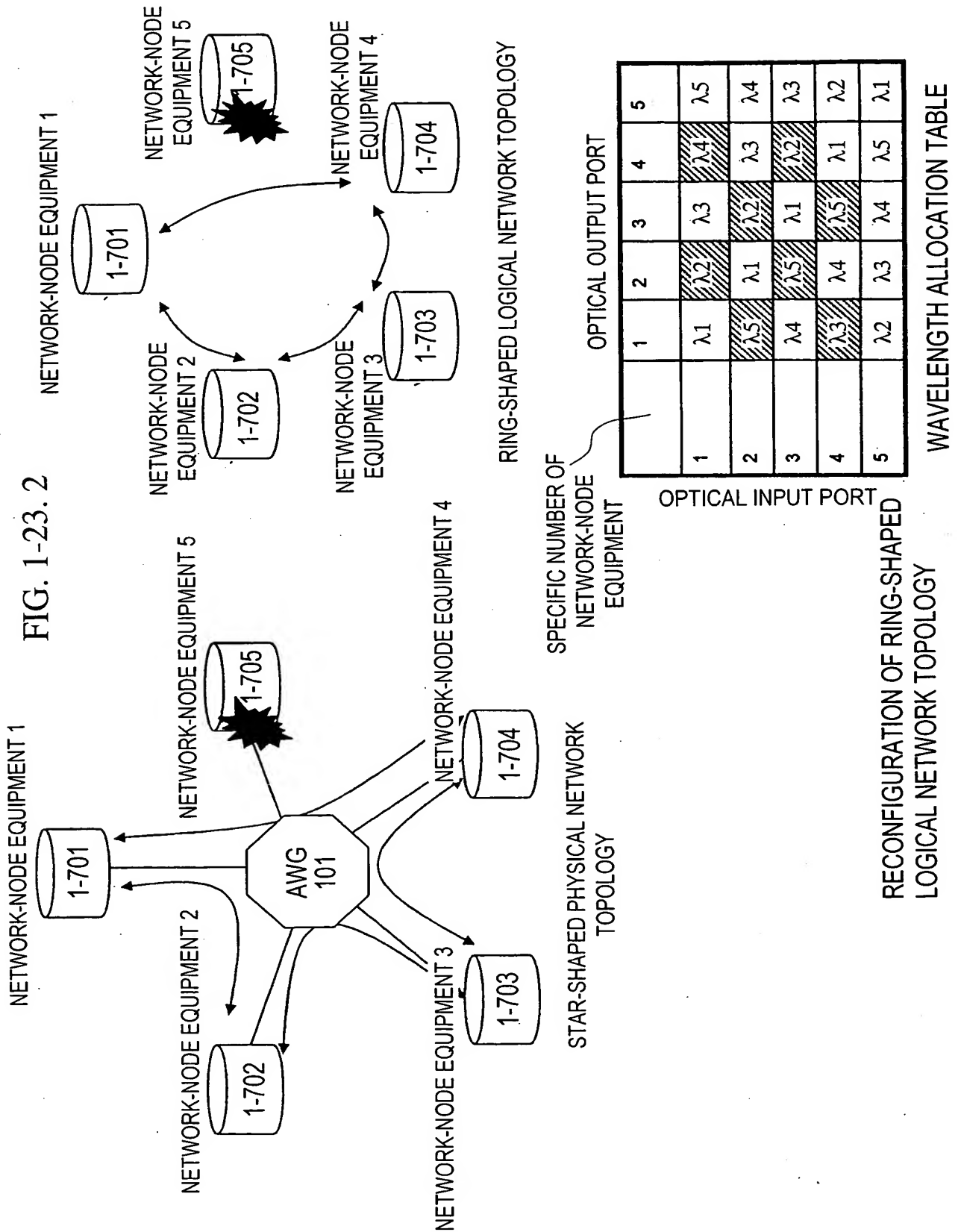


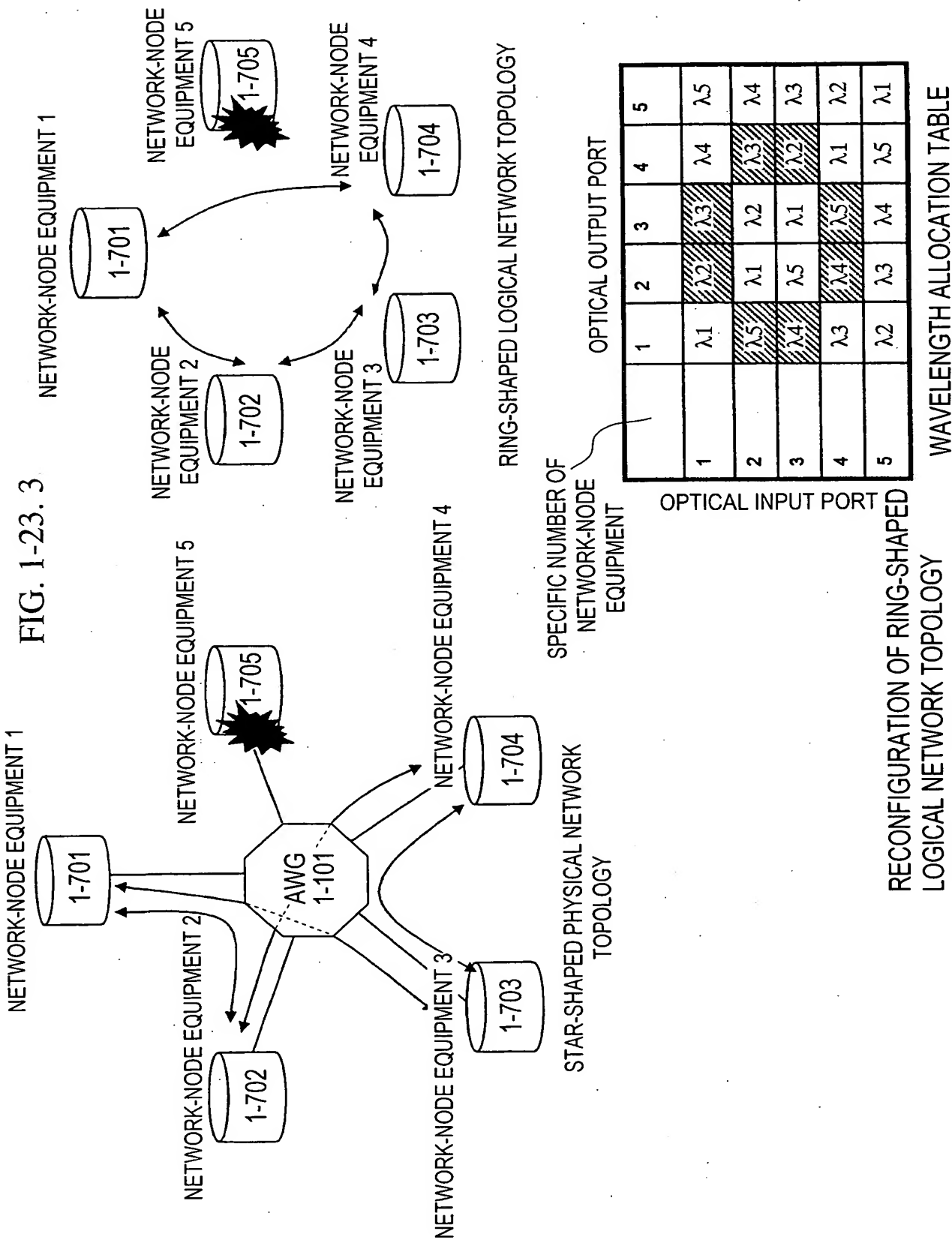
FIG. 1-23



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FIG. 1-24

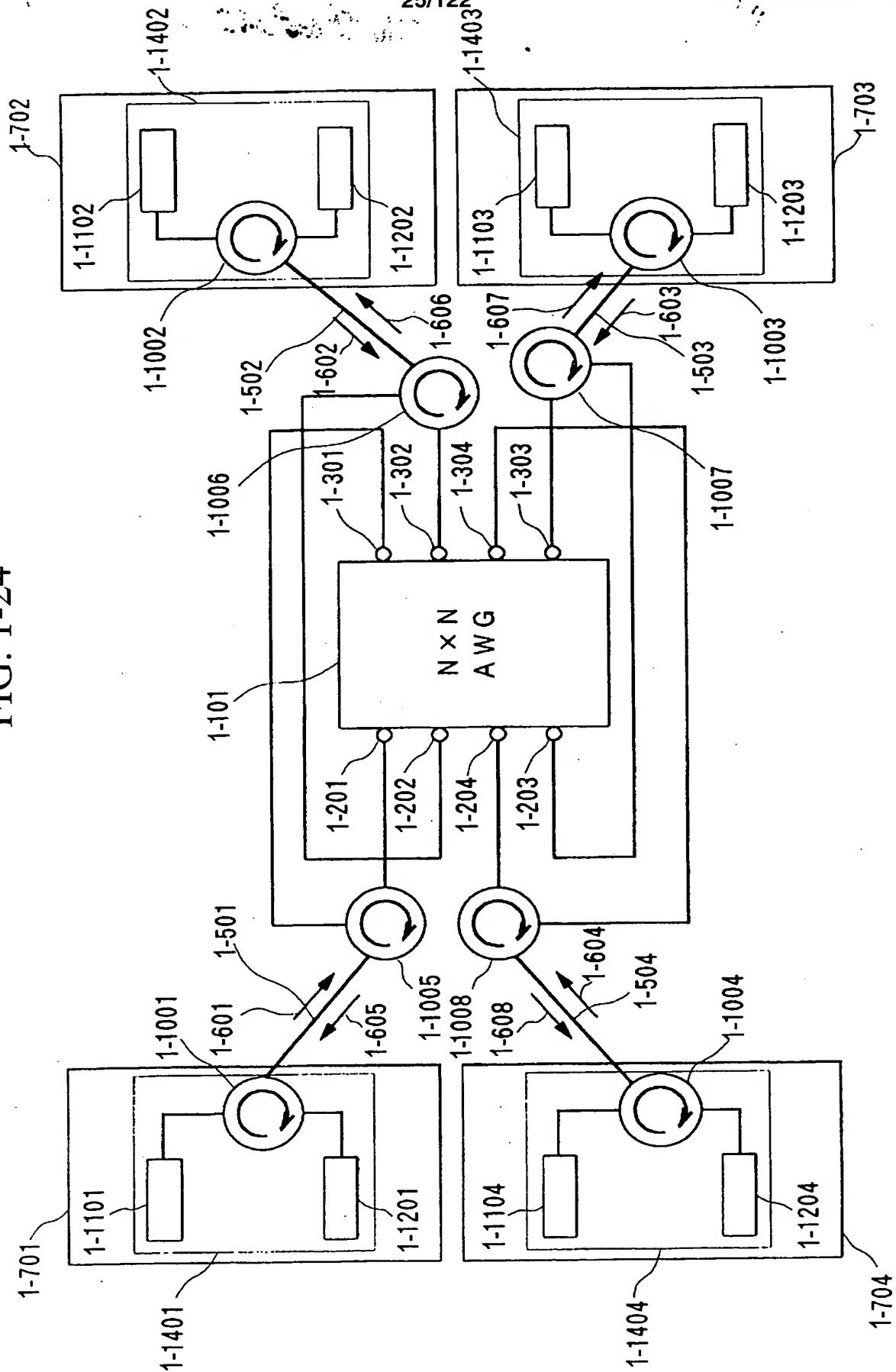


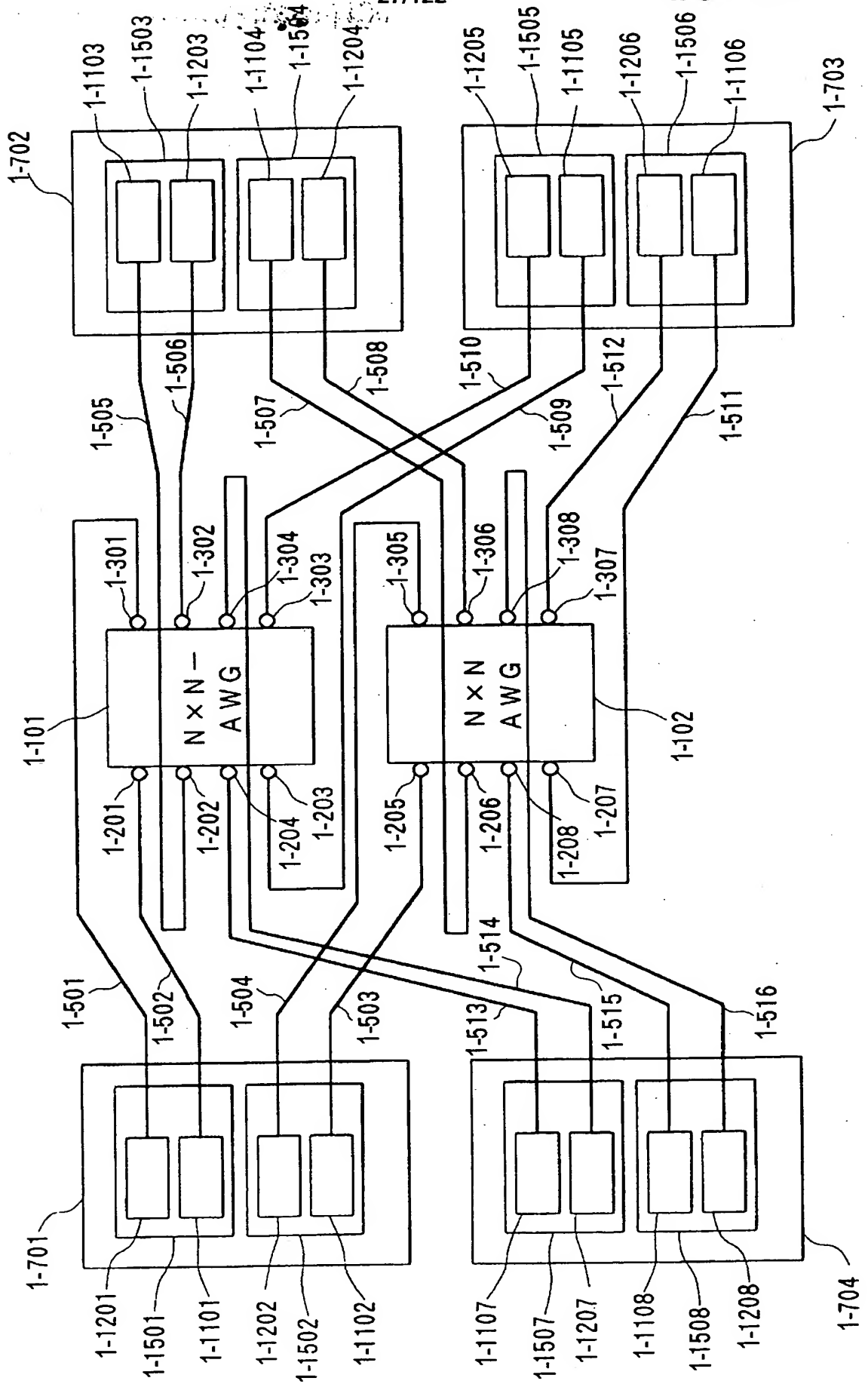
FIG. 1-25

NETWORK-NODE EQUIPMENT (RECEIVING)		NETWORK-NODE EQUIPMENT (TRANSMITTING)			
		1-701	1-702	1-703	1-704
1-701		λ_1	λ_2	λ_3	λ_4
1-702		λ_4	λ_1	λ_2	λ_3
1-703		λ_3	λ_4	λ_1	λ_2
1-704		λ_2	λ_3	λ_4	λ_1

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FIG. 1-26



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FIG. 1-28

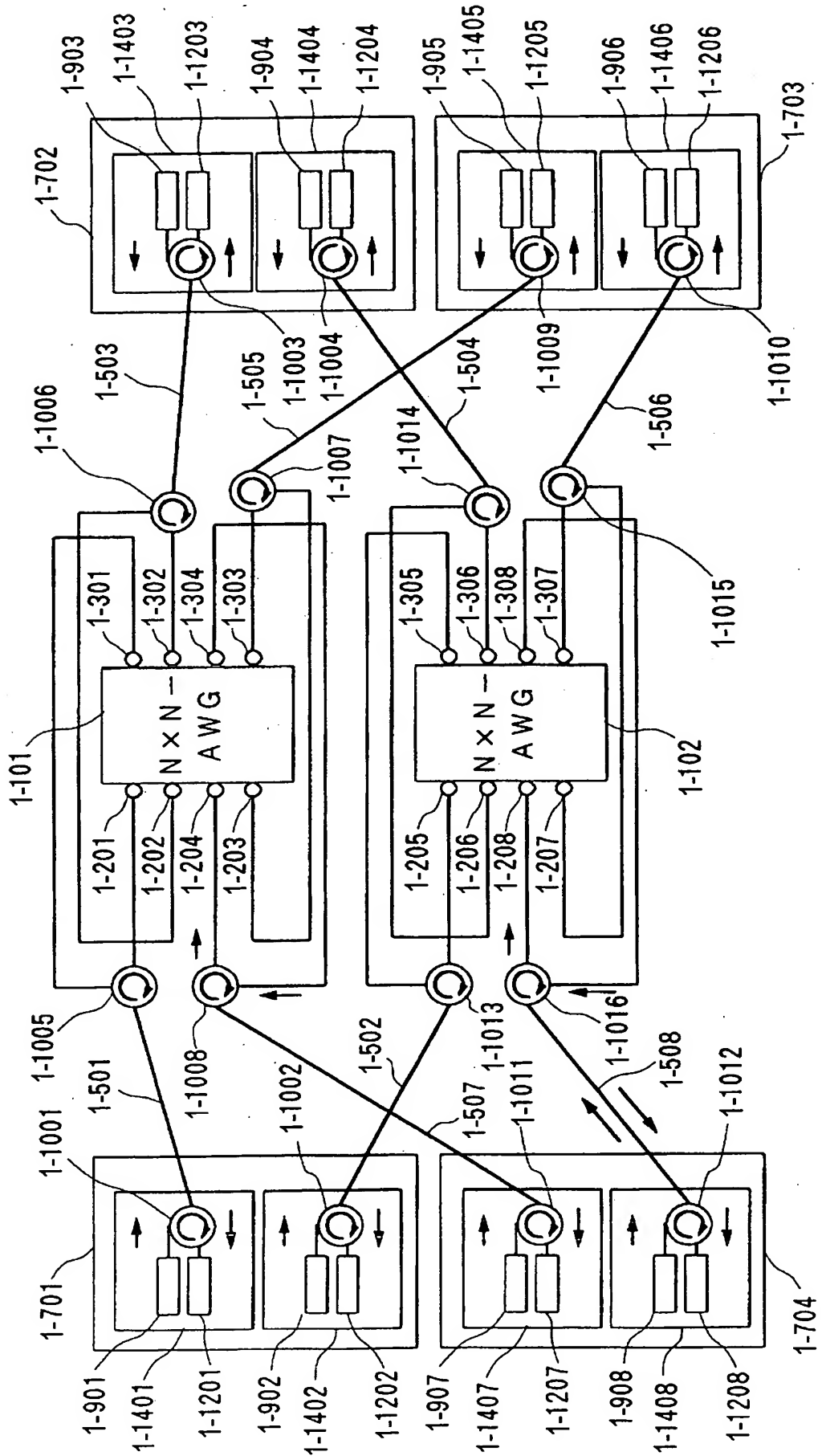


FIG. 1-29

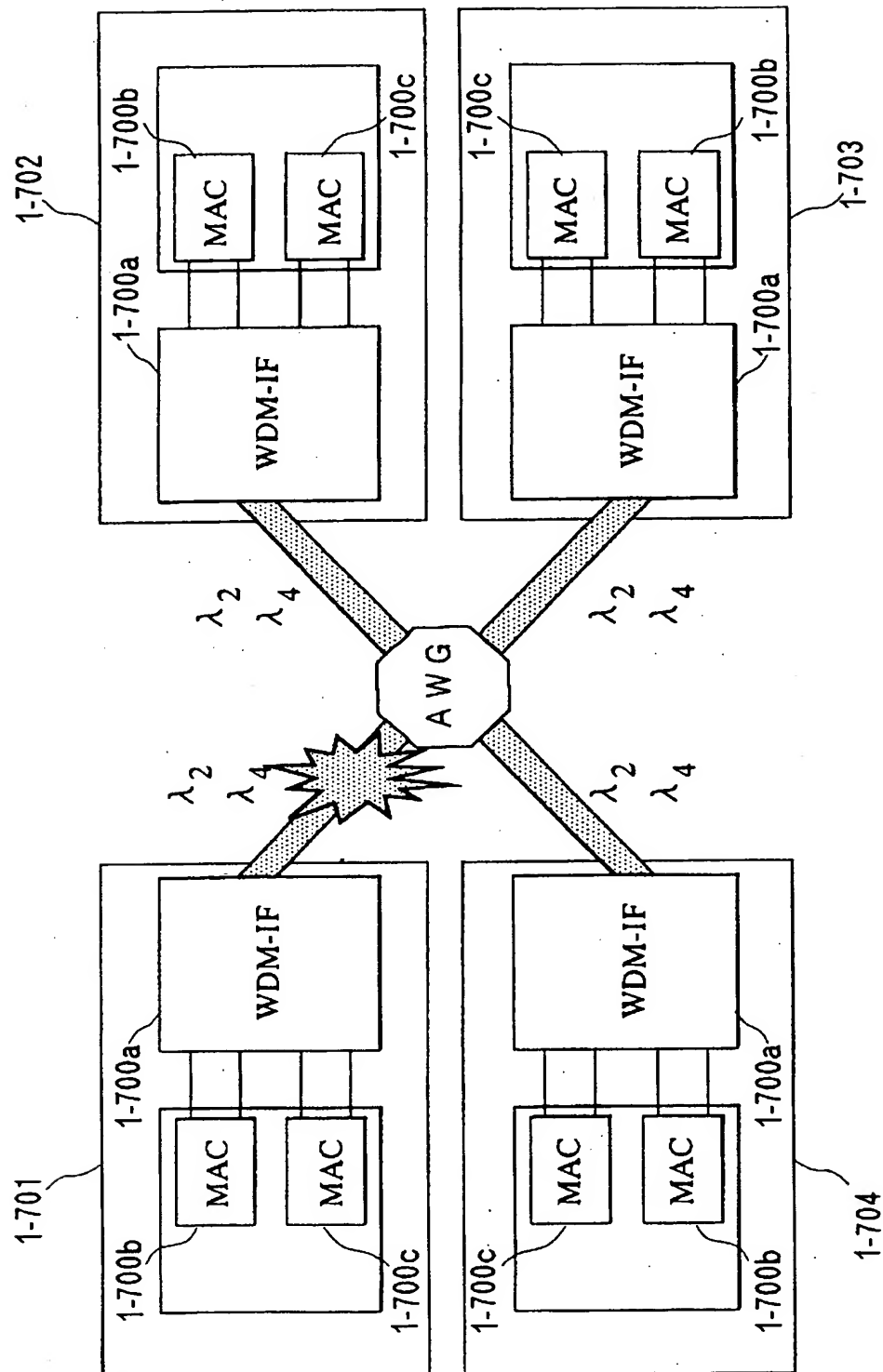
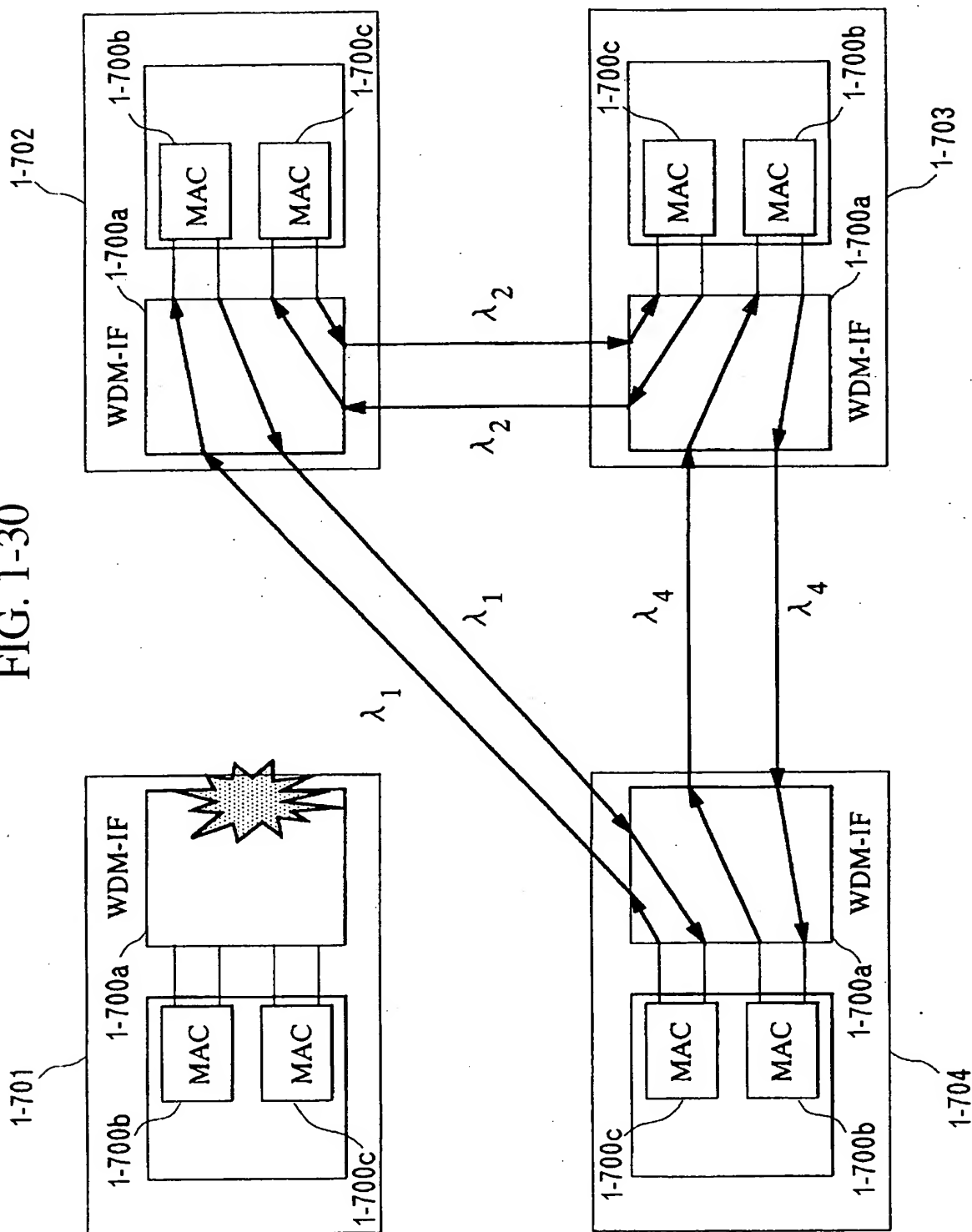


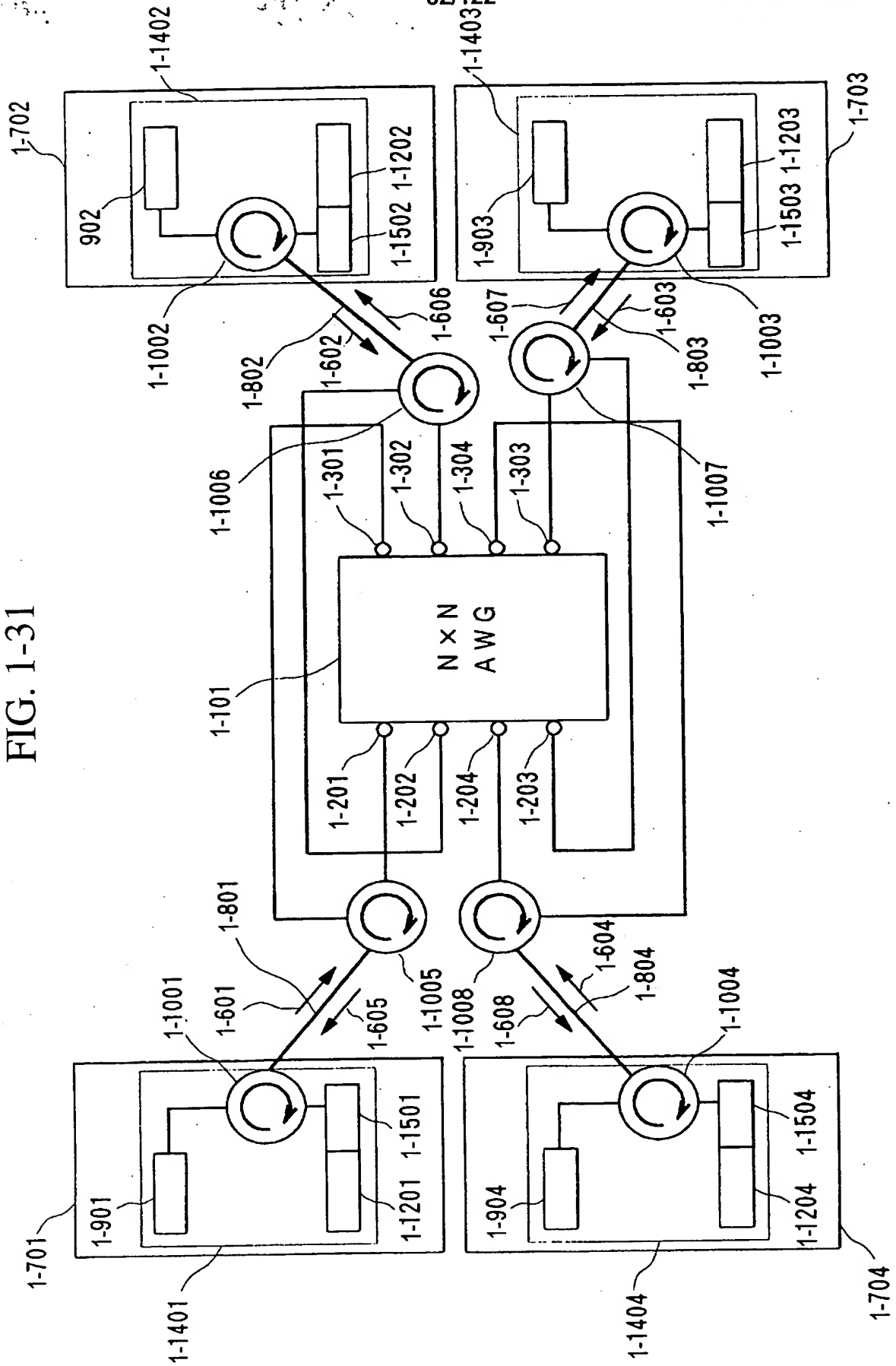
FIG. 1-30



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FIG. 1-31



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FIG. 1-32

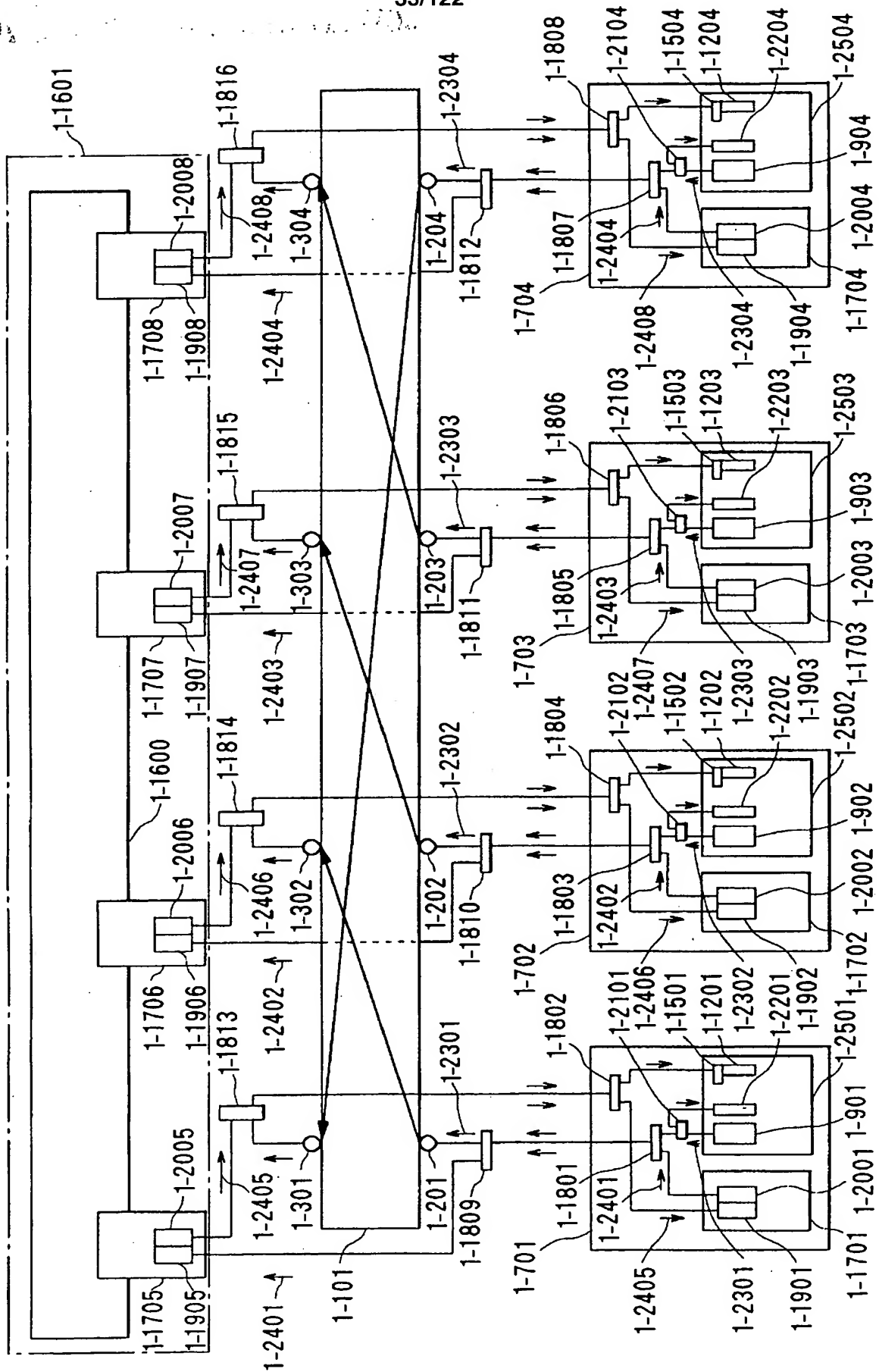
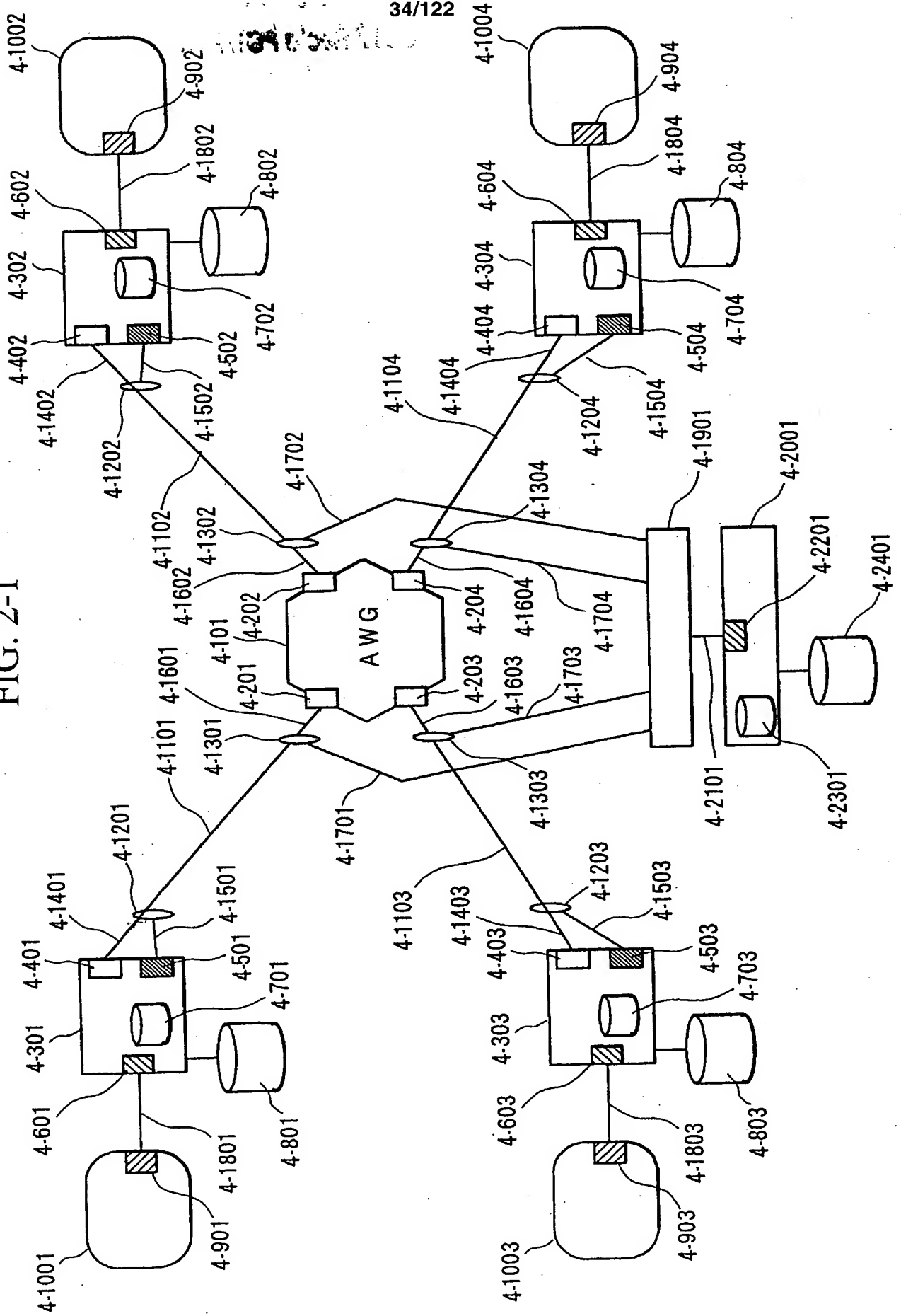


FIG. 2-1



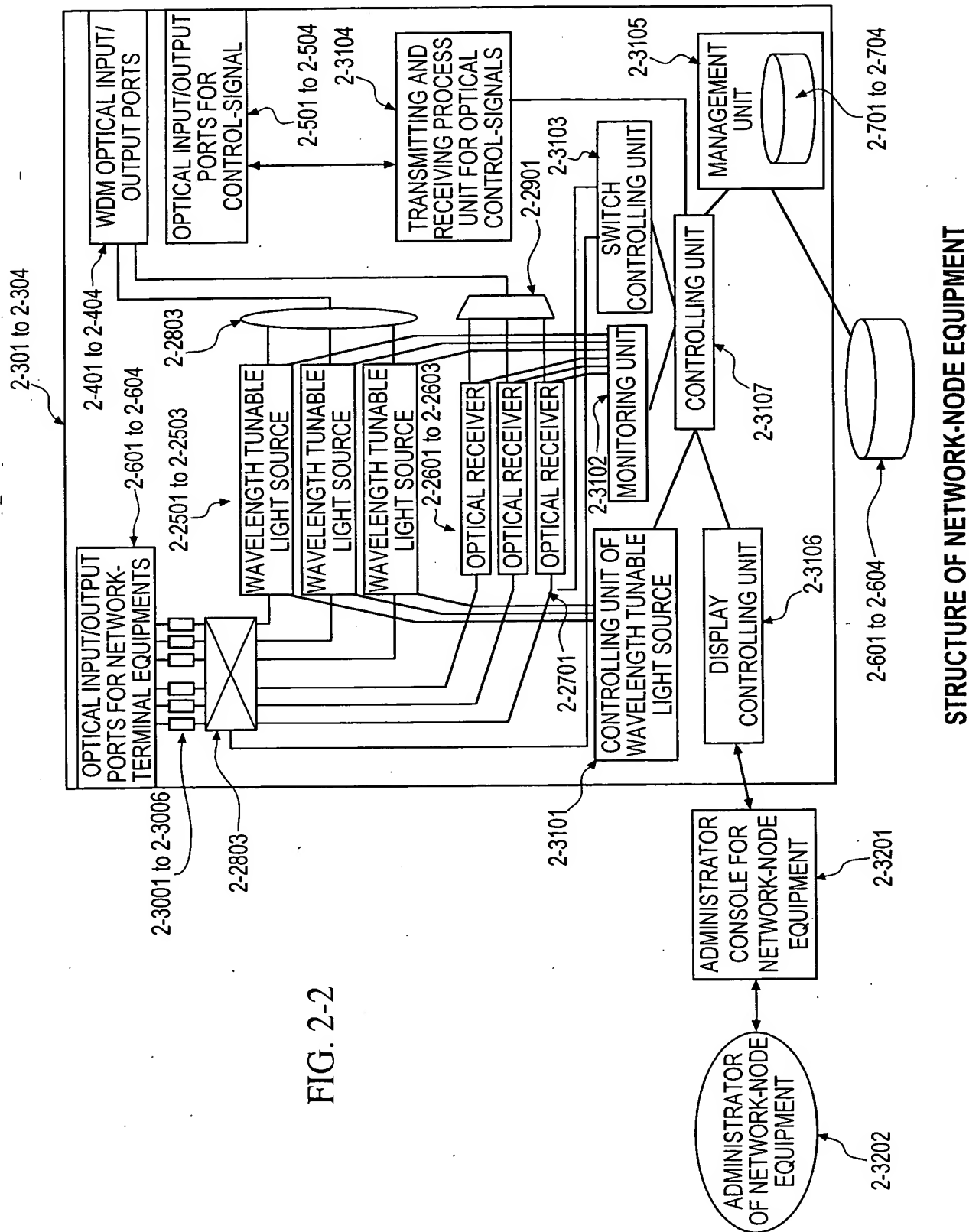
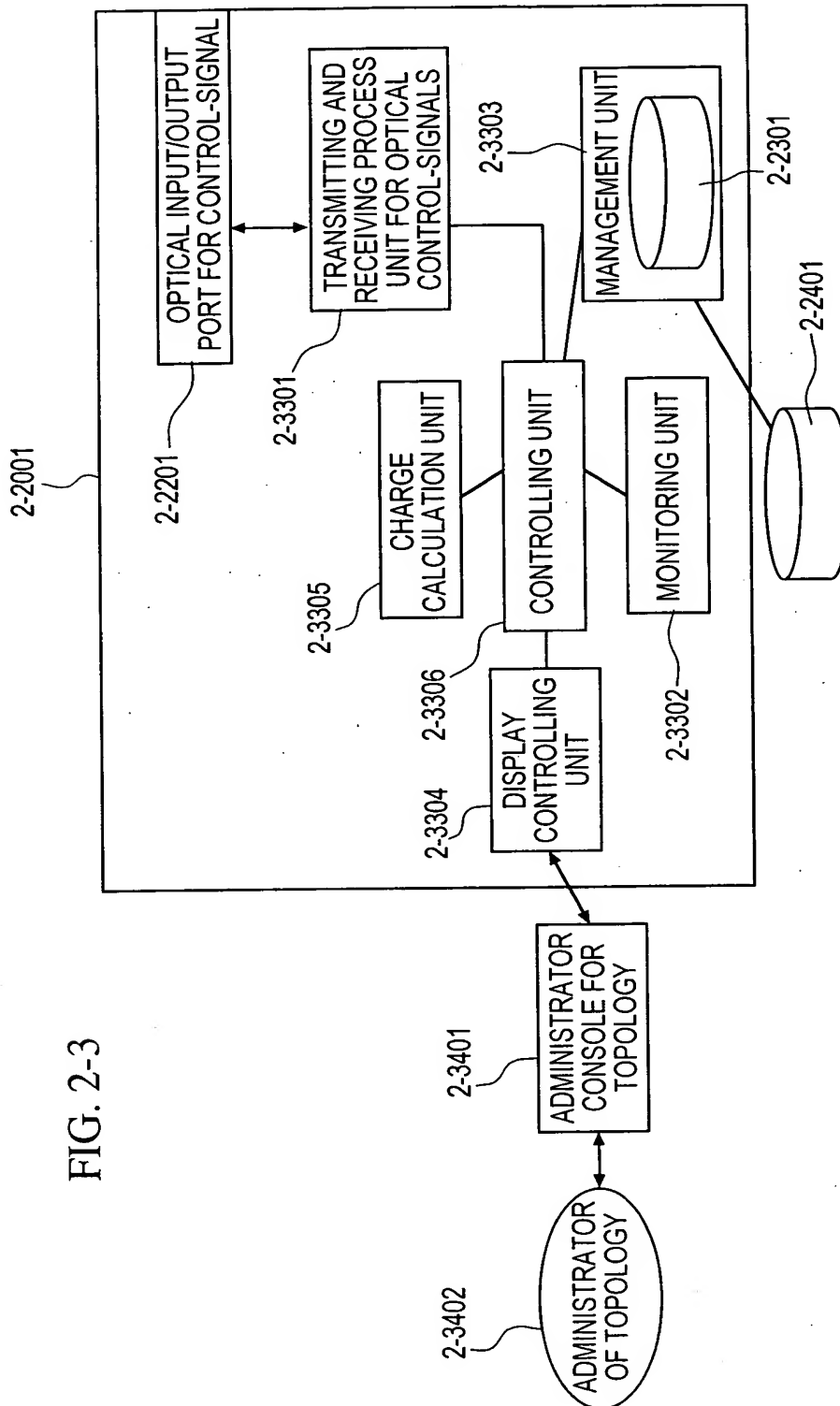


FIG. 2-3



2-3501

FIG. 2-4

SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT	GRID INTERVAL	USABLE WAVELENGTH							
		$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$
1	50GHz								

SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT	GRID INTERVAL	USABLE WAVELENGTH							
		$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$
2	50GHz								

•

•

•

SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT	GRID INTERVAL	USABLE WAVELENGTH							
		$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$
10	50GHz								

FIG. 2-5

2-3502

SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT	GRID INTERVAL	USABLE WAVELENGTH								
		$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
1	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
2	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
3	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
4	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
5	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
6	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
7	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
8	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
9	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$
10	50GHz	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$	$\lambda 8$	$\lambda 9$

2-3601

FIG. 2-6

TYPE OF LOGICAL NETWORK TOPOLOGY									
MESH					MESH				
SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT					1				
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT					1				
USER ID					1				
WAVELENGTH IN USE					λ2 λ2 λ2 λ2 λ2				
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT					2 3 4 1 3				
TRANSMITTING STATUS OF WDM SIGNAL					Ok Ok Ok Ok Ok				
RECEIVING STATUS OF WDM SIGNAL					Ok Ok Ok Ok Ok				
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT					Ok Ok Ok Ok Ok				
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT					3				
ADDING BANDWIDTH OF LINK									
LENGTH OF TIME FOR INCREASING BANDWIDTH									

MESH	MESH	RING	RING	RING	RING	RING, STAR	STAR	STAR	STAR
3	4	5	6	7	8	9	10		
3	4	1	2	3	4	5	6		
1	1	2	2	2	2	2	2		
$\lambda 2$	$\lambda 2$	$\lambda 2$	$\lambda 2$	$\lambda 2$	$\lambda 2$	$\lambda 2$	$\lambda 2$	$\lambda 2$	$\lambda 2$
4	1	2	3	1	2	7	6	5	8
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
3	3	2	2	2	2	5	1	1	1

FIG. 2-7

2-3603 2-3602 2-3604

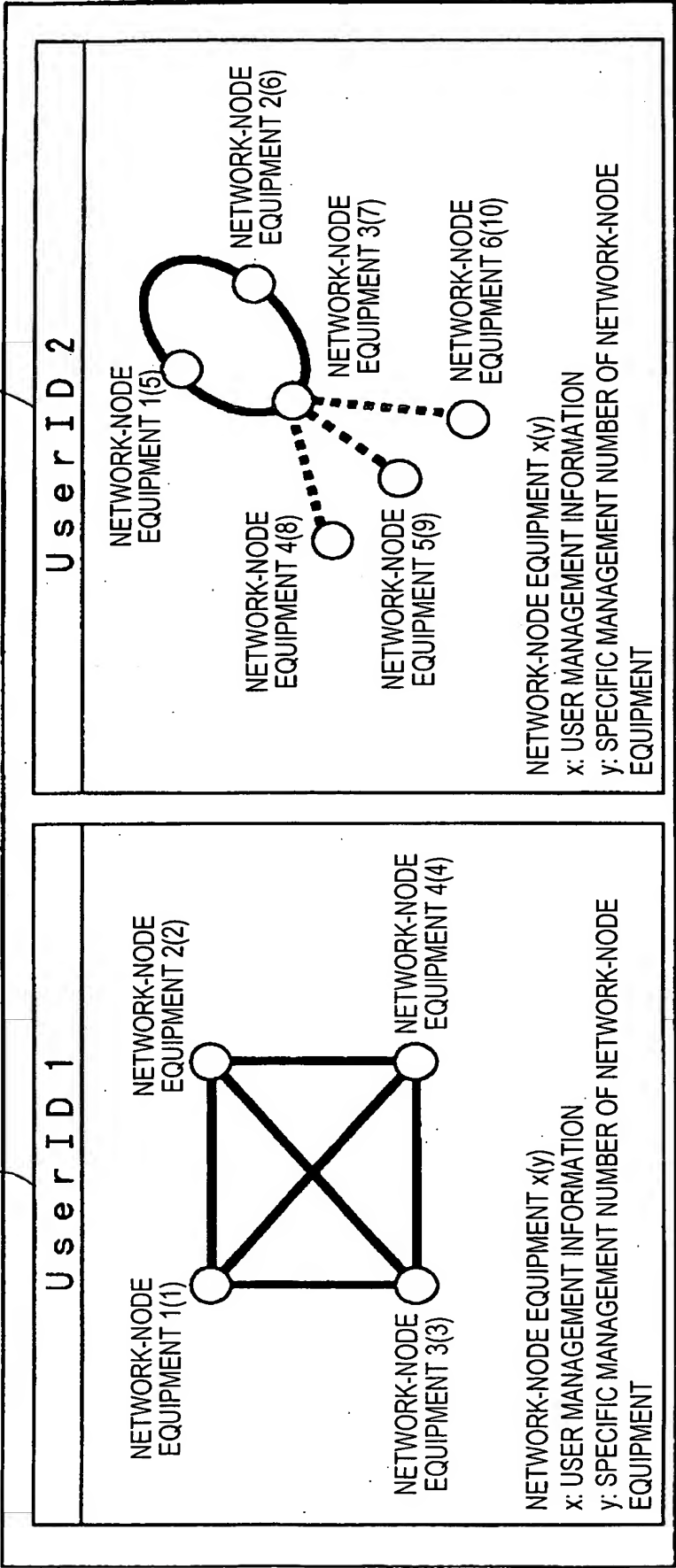


FIG. 2-8

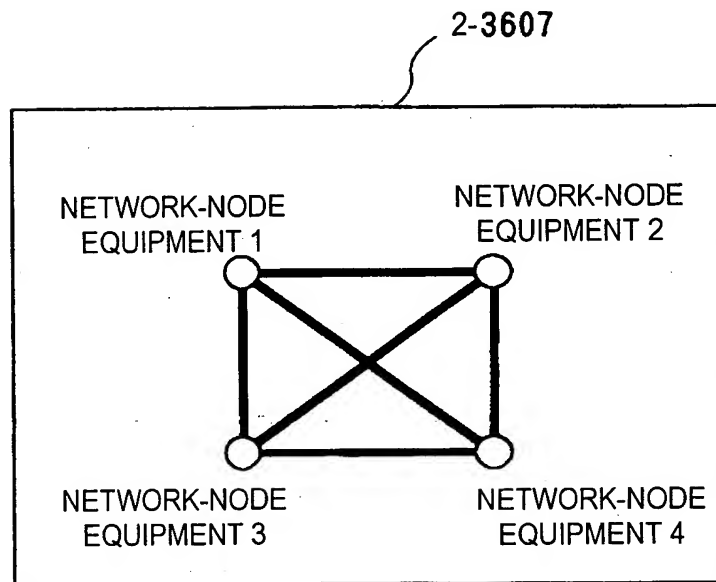
2-3605

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK- NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	12	0	A
1	2003.02	0	0	12	0	A
1	2003.03	0	0	12	0	A
1	2003.04	0	0	12	0	A
1	2003.05	0	0	12	0	A
2	2003.01	0	0	12	0	A
2	2003.02	0	0	12	0	A
2	2003.03	0	0	12	0	A
2	2003.04	0	0	12	0	A
2	2003.05	0	0	12	0	A

2-3606

TYPE OF LOGICAL NETWORK TOPOLOGY	MESH	MESH	MESH	MESH
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT	1			
	2			
WAVELENGTH IN USE	3			
	4			
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT				
TRANSMITTING STATUS OF WDM SIGNAL				
RECEIVING STATUS OF WDM SIGNAL				
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT				
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	3			
ADDING BANDWIDTH OF LINK				
LENGTH OF TIME FOR INCREASING BANDWIDTH				

FIG. 2-10



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FIG. 2-11

2-3608

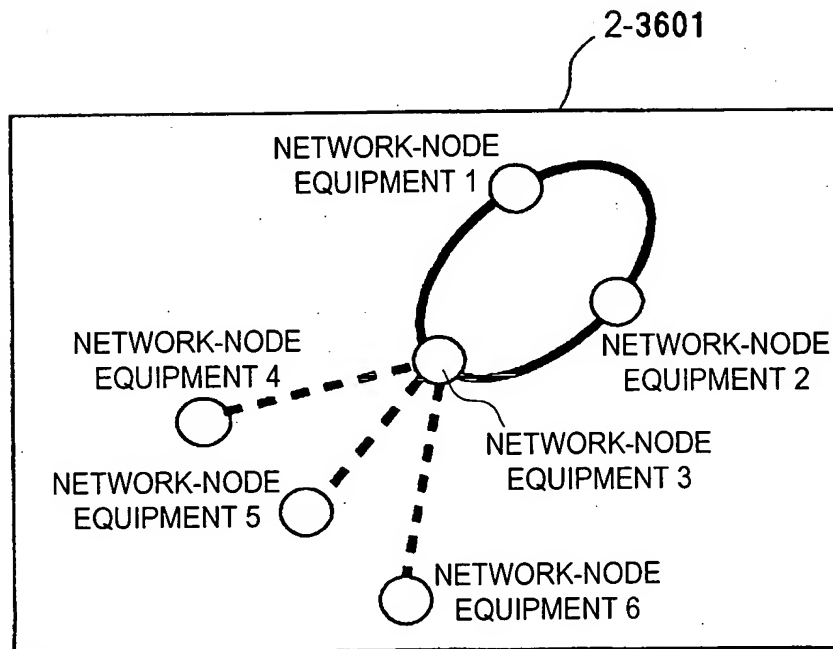
USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	12	0	A
1	2003.02	0	0	12	0	A
1	2003.03	0	0	12	0	A
1	2003.04	0	0	12	0	A
1	2003.05	0	0	12	0	A

2-3609

FIG. 2-12

[illegible]

FIG. 2-13



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FIG. 2-14

2-3611

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
2	2003.01	0	0	12	0	A
2	2003.02	0	0	12	0	A
2	2003.03	0	0	12	0	A
2	2003.04	0	0	12	0	A
2	2003.05	0	0	12	0	A

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FIG. 2-15

2-3701

TYPE OF LOGICAL NETWORK TOPOLOGY														
MESH								MESH, SATR						
SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT								1		2				
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT								1		2				
USER ID								1		1				
WAVELENGTH IN USE														
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT								$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 3$	$\lambda 4$	$\lambda 1$	λh
TRANSMITTING STATUS OF WDM SIGNAL								2	3	4	1	3	4	11
RECEIVING STATUS OF WDM SIGNAL								0k	0k	0k	0k	0k	0k	0k
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT								0k	0k	0k	0k	0k	0k	0k
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT								0k	0k	0k	0k	0k	0k	0k
ADDING BANDWIDTH OF LINK								3		4				
LENGTH OF TIME FOR INCREASING BANDWIDTH														

MESH	MESH, SATR				SATR	RING	RING	RING	RING, SATR	SATR	SATR	SATR
3	4				11	6	7	7	7	8	9	10
3	4				5	2	3	3	3	4	5	6
1	1				1	2	2	2	2	2	2	2
$\lambda 4$	$\lambda 1$	$\lambda 2$	$\lambda 3$	λi	λh	λi	λb	λc	λa	λd	λe	λf
4	1	2	3	1	2	4	5	7	5	8	9	10
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
3	4				2	2	2	2	5	1	1	1

FIG. 2-16

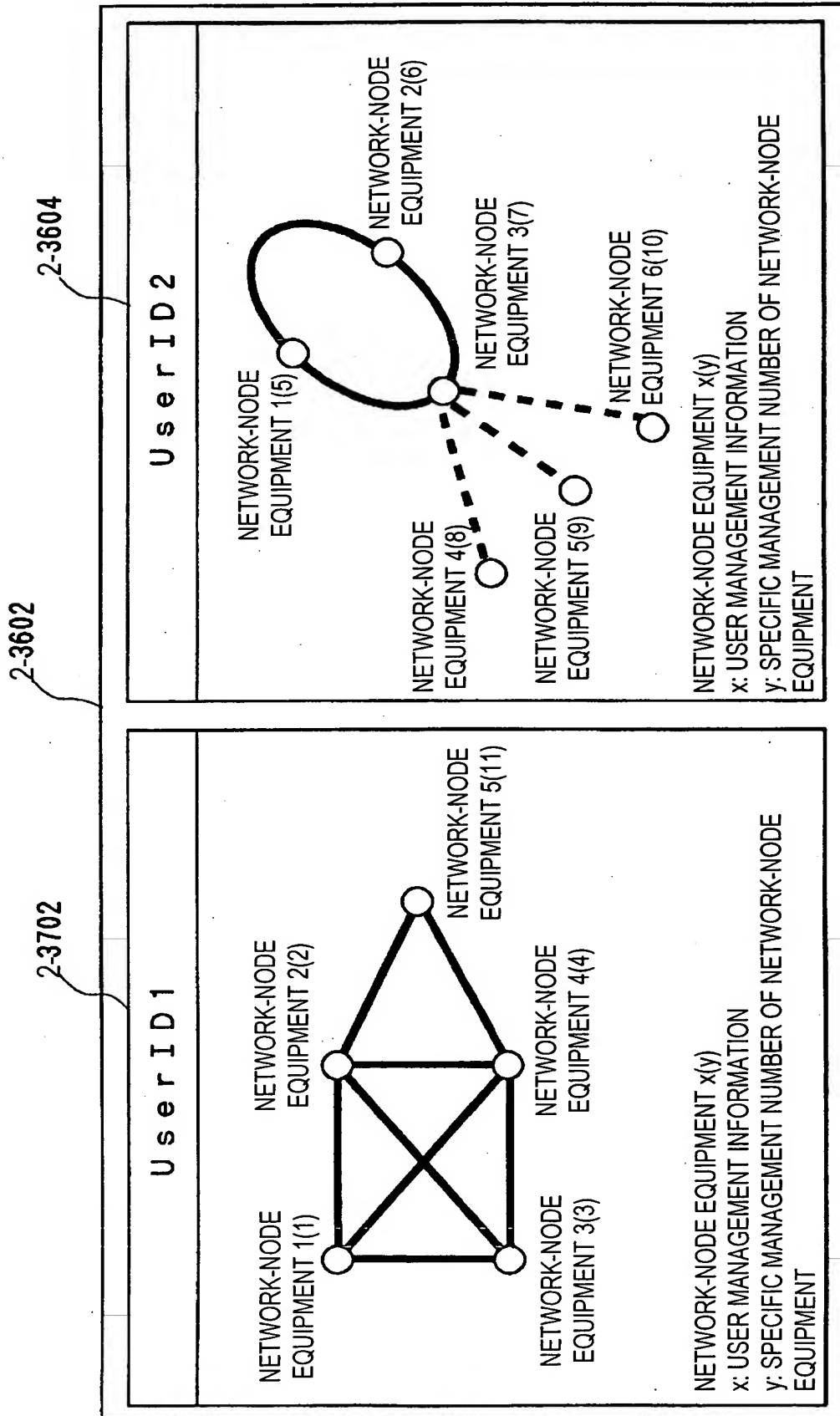


FIG. 2-17

2-3703

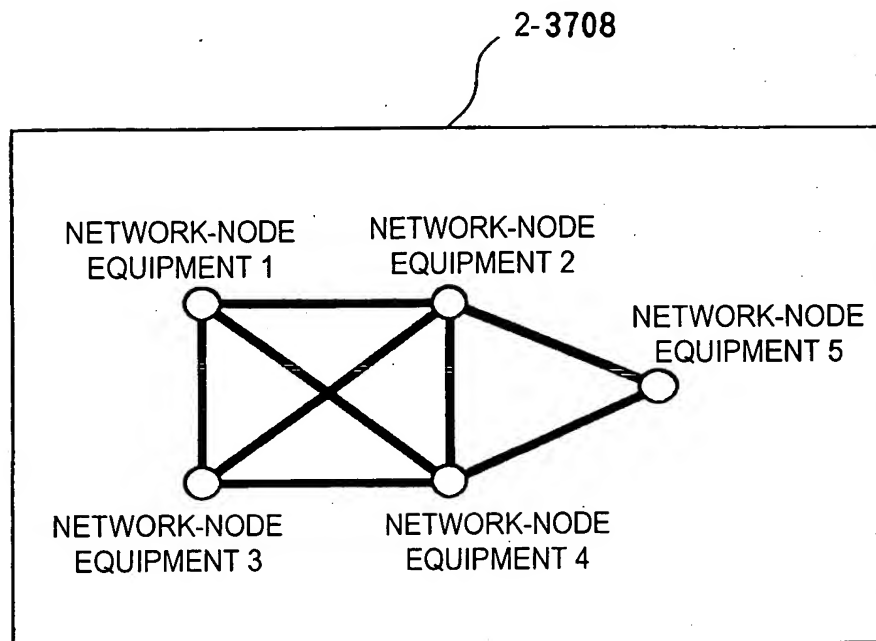
USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	12	0	A
1	2003.02	0	0	12	0	A
1	2003.03	0	0	12	0	A
1	2003.04	1	0	14	0	B
1	2003.05	1	0	14	0	B
2	2003.01	0	0	12	0	A
2	2003.02	0	0	12	0	A
2	2003.03	0	0	12	0	A
2	2003.04	0	0	12	0	A
2	2003.05	0	0	12	0	A

2-3704

2-3705

TYPE OF LOGICAL NETWORK TOPOLOGY	MESH	MESH, SATR	MESH	MESH, SATR	SATR
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT	1	2	3	4	5
WAVELENGTH IN USE	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 1$	$\lambda 2$
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT	2	3	4	1	2
TRANSMITTING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k
RECEIVING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT	0k	0k	0k	0k	0k
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	3	4	3	4	2
ADDING BANDWIDTH OF LINK					
LENGTH OF TIME FOR INCREASING BANDWIDTH					

FIG. 2-19



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FIG. 2-20
2-3709

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	12	0	A
1	2003.02	0	0	12	0	A
1	2003.03	0	0	12	0	A
1	2003.04	1	0	14	0	B
1	2003.05	1	0	14	0	B

2-3710

TYPE OF LOGICAL NETWORK TOPOLOGY	MESH			MESH		
SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT	1			2		
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT	1			2		
USER ID	1			1		
WAVELENGTH IN USE	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 3$	$\lambda 4$	$\lambda 1$
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT	2	3	4	1	3	4
TRANSMITTING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k
RECEIVING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT	0k	0k	0k	0k	0k	0k
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	3			3		
ADDING BANDWIDTH OF LINK						
LENGTH OF TIME FOR INCREASING BANDWIDTH						

BANDWIDTH ADDITION

BANDWIDTH ADDITION

BANDWIDTH ADDITION

[illegible]

BANDWIDTH ADDITION

BANDWIDTH ADDITION

ONE MONTH

BANDWIDTH ADDITION

ONE MONTH

ONE MONTH

2-3802

FIG. 2-22

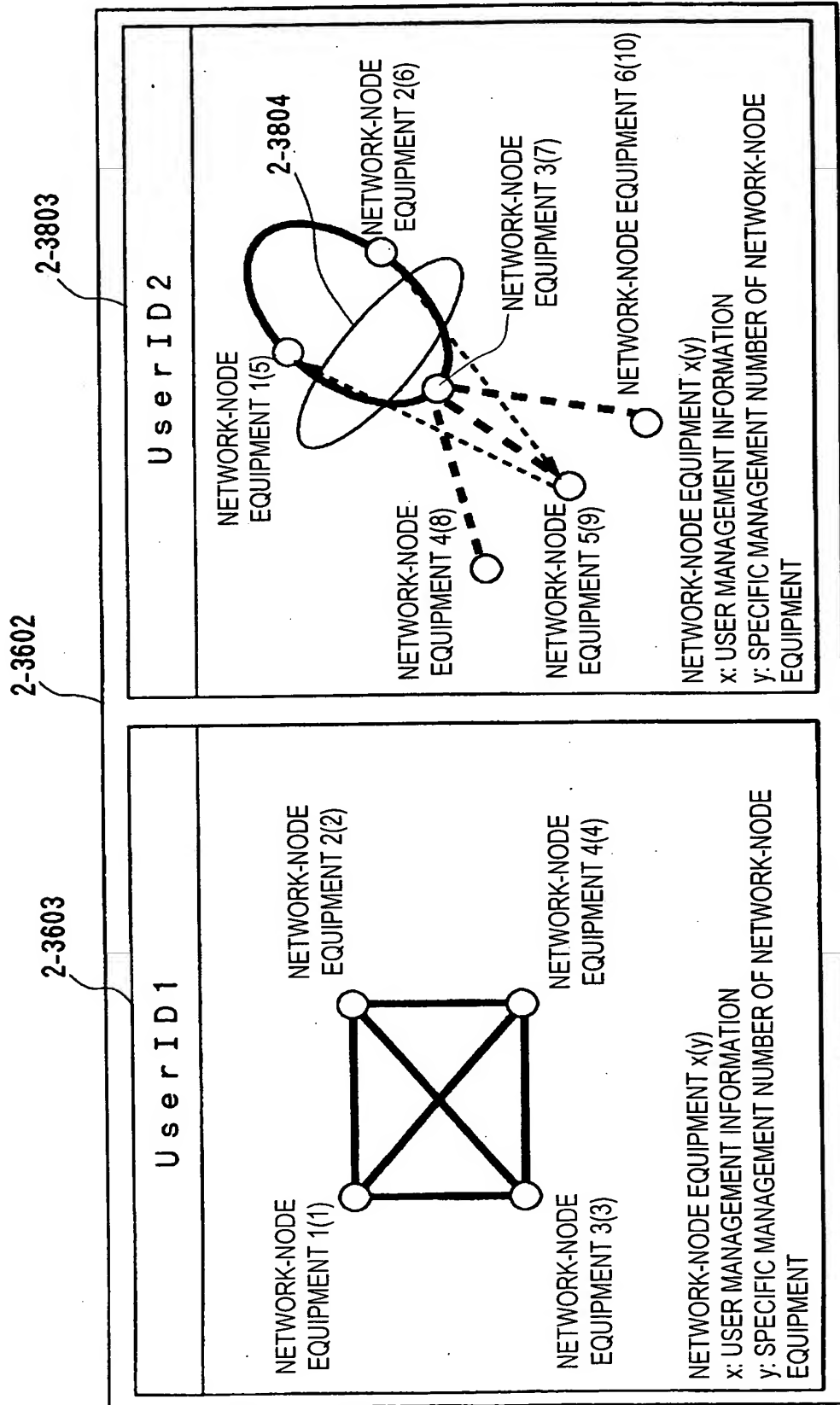


FIG. 2-23

2-3805

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	12	0	A
1	2003.02	0	0	12	0	A
1	2003.03	0	0	12	0	A
1	2003.04	0	0	12	0	A
1	2003.05	0	0	12	0	A
2	2003.01	0	0	12	0	A
2	2003.02	0	0	12	0	A
2	2003.03	0	0	12	0	A
2	2003.04	0	0	12	0	A
2	2003.05	0	1	16	0	C

2-3806

FIG. 2-24

TYPE OF LOGICAL NETWORK TOPOLOGY	RING			RING			RING			STAR			STAR STAR	
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT	1			2			3			4			5 6	
WAVELENGTH IN USE	λa	λb	λc	λa	λb	λc	λa	λb	λc	λd	λe	λf	λg	λh
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT	3	2	1	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
TRANSMITTING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
RECEIVING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	3			3			5			3			1 1	
ADDING BANDWIDTH OF LINK														
LENGTH OF TIME FOR INCREASING BANDWIDTH														
BANDWIDTH ADDITION	ONE MONTH			BANDWIDTH ADDITION ONE MONTH			BANDWIDTH ADDITION ONE MONTH			BANDWIDTH ADDITION ONE MONTH			BANDWIDTH ADDITION ONE MONTH	

FIG. 2-25

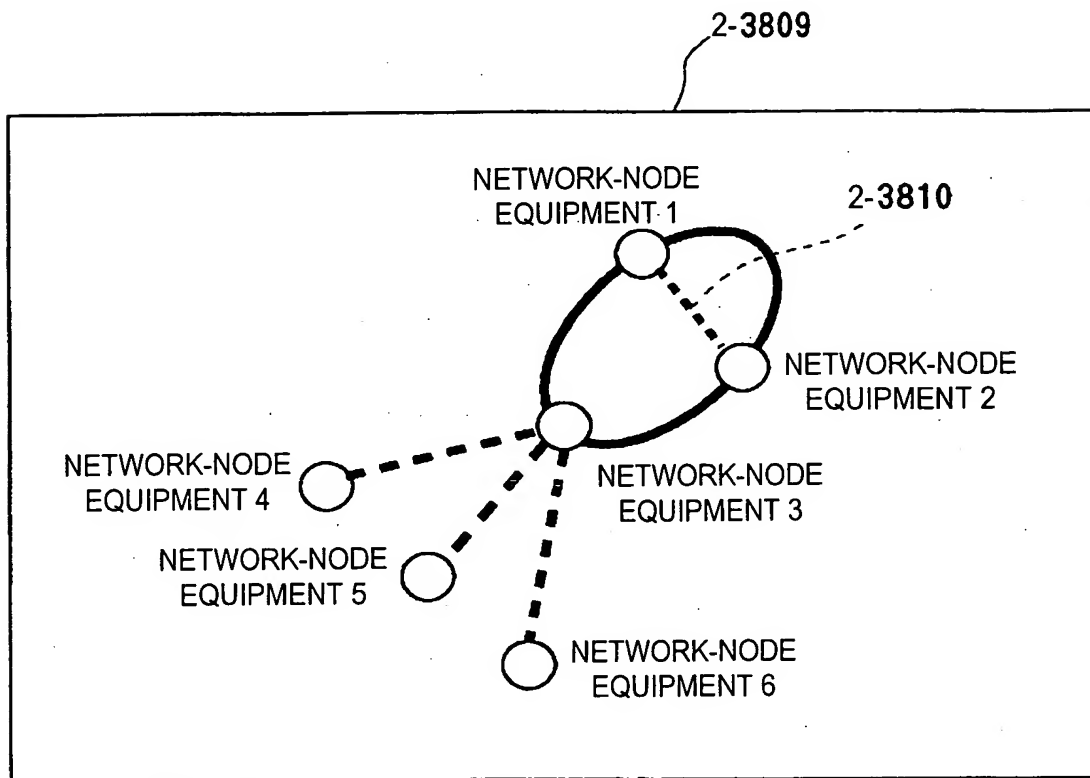


FIG. 2-26

2-3811

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
2	2003.01	0	0	12	0	A
2	2003.02	0	0	12	0	A
2	2003.03	0	0	12	0	A
2	2003.04	0	0	12	0	A
2	2003.05	0	1	16	0	C

2-3812

FIG. 2-27

TYPE OF LOGICAL NETWORK TOPOLOGY		MESH
SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT		1
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT		1
USER ID		1
WAVELENGTH IN USE		$\lambda 2$ $\lambda 3$ $\lambda 4$
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT		2 3 4
TRANSMITTING STATUS OF WDM SIGNAL		Ok Ok Ok
RECEIVING STATUS OF WDM SIGNAL		Ok Ok Ok
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT		Ok Ok Ok
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT		3
ADDING BANDWIDTH OF LINK		
LENGTH OF TIME FOR INCREASING BANDWIDTH		

2-3901

BANDWIDTH ADDITION

MESH	MESH	MESH	MESH	MESH	RING	RING	RING, SATR	SATR	SATR	SATR
2	3	4	5	6	7	8	9	10		
2	3	4	5	6	7	8	9	10		
1	1	1	1	1	2	2	2	2	2	2
$\lambda 3$	$\lambda 4$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$	λf
1	3	4	8	4	1	2	3	1	2	8
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok
5	3	5	2	2	5	3	1	1	1	1

BANDWIDTH ADDITION

ONE MONTH

BANDWIDTH ADDITION

2-3902

ONE MONTH

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FIG. 2-28

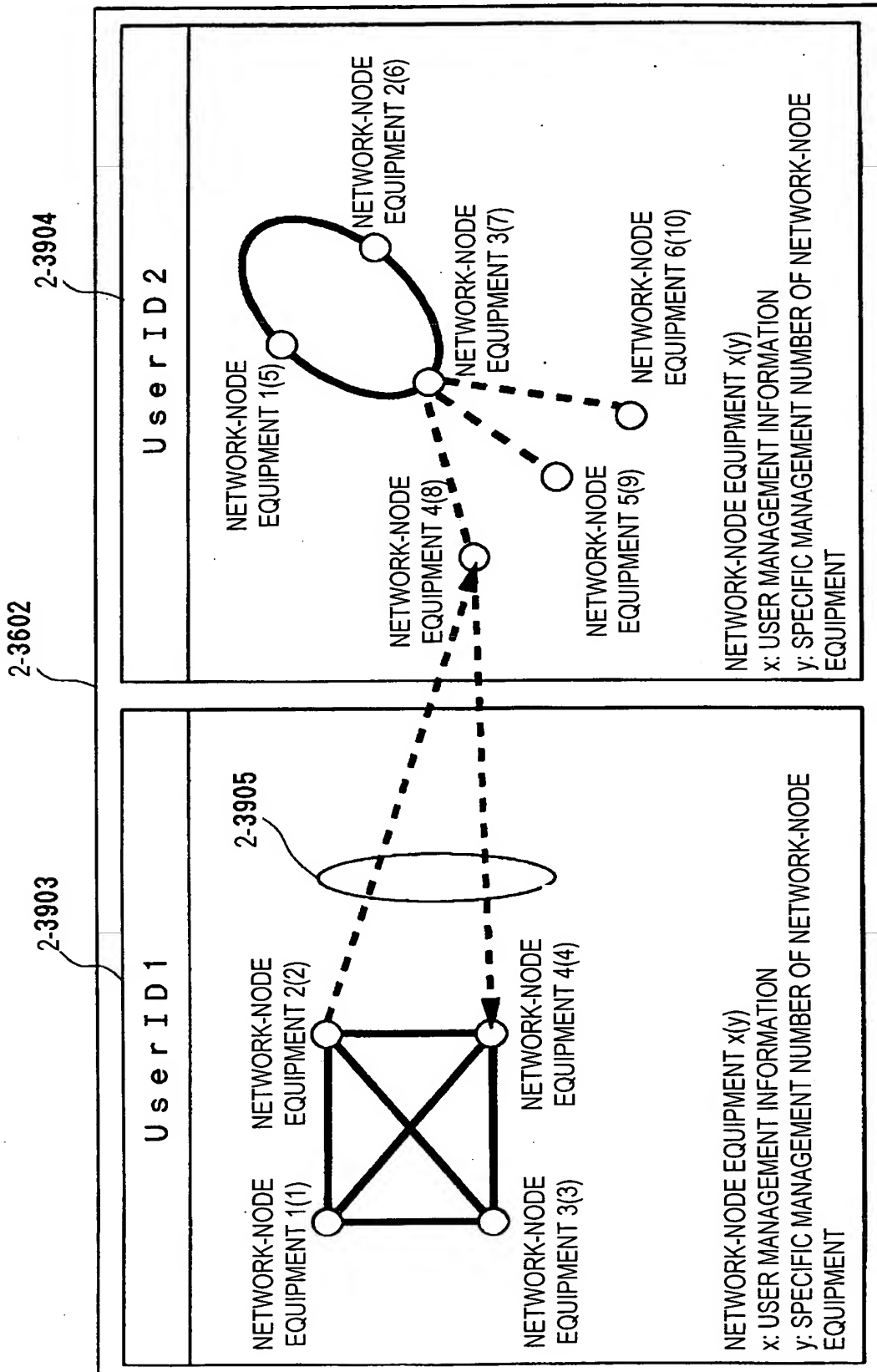


FIG. 2-29

2-3906

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	12	0	A
1	2003.02	0	0	12	0	A
1	2003.03	0	0	12	0	A
1	2003.04	0	0	12	0	A
1	2003.05	0	1	16	0	C
2	2003.01	0	0	12	0	A
2	2003.02	0	0	12	0	A
2	2003.03	0	0	12	0	A
2	2003.04	0	0	12	0	A
2	2003.05	0	0	12	0	D

2-3907

2-3908

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FIG. 2-30

TYPE OF LOGICAL NETWORK TOPOLOGY	MESH				MESH				MESH				MESH			
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT	1				2				3				4			
WAVELENGTH IN USE	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 3$	$\lambda 4$	$\lambda 3$	$\lambda 4$	$\lambda 1$	$\lambda 4$	$\lambda 1$	$\lambda 4$	$\lambda 2$	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 1$
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT	2	3	4	4	3	1	4	4	4	1	2	2	3	1	2	2
TRANSMITTING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
RECEIVING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	3				4				3				4			
ADDING BANDWIDTH OF LINK																
LENGTH OF TIME FOR INCREASING BANDWIDTH																

2-3909

2-3910

BANDWIDTH ADDITION

BANDWIDTH ADDITION

BANDWIDTH ADDITION

ONE MONTH

ONE MONTH

FIG. 2-31

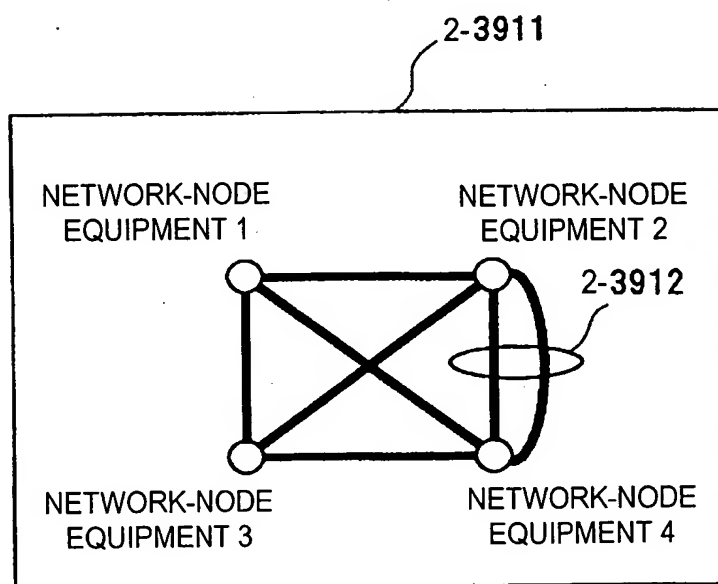


FIG. 2-32

2-3913

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	12	0	A
1	2003.02	0	0	12	0	A
1	2003.03	0	0	12	0	A
1	2003.04	0	0	12	0	A
1	2003.05	0	1	16	0	C

2-3914

FIG. 2-33

2-3915

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
2	2003.01	0	0	12	0	A
2	2003.02	0	0	12	0	A
2	2003.03	0	0	12	0	A
2	2003.04	0	0	12	0	A
2	2003.05	0	0	12	α	D

2-3916

FIG. 2-34

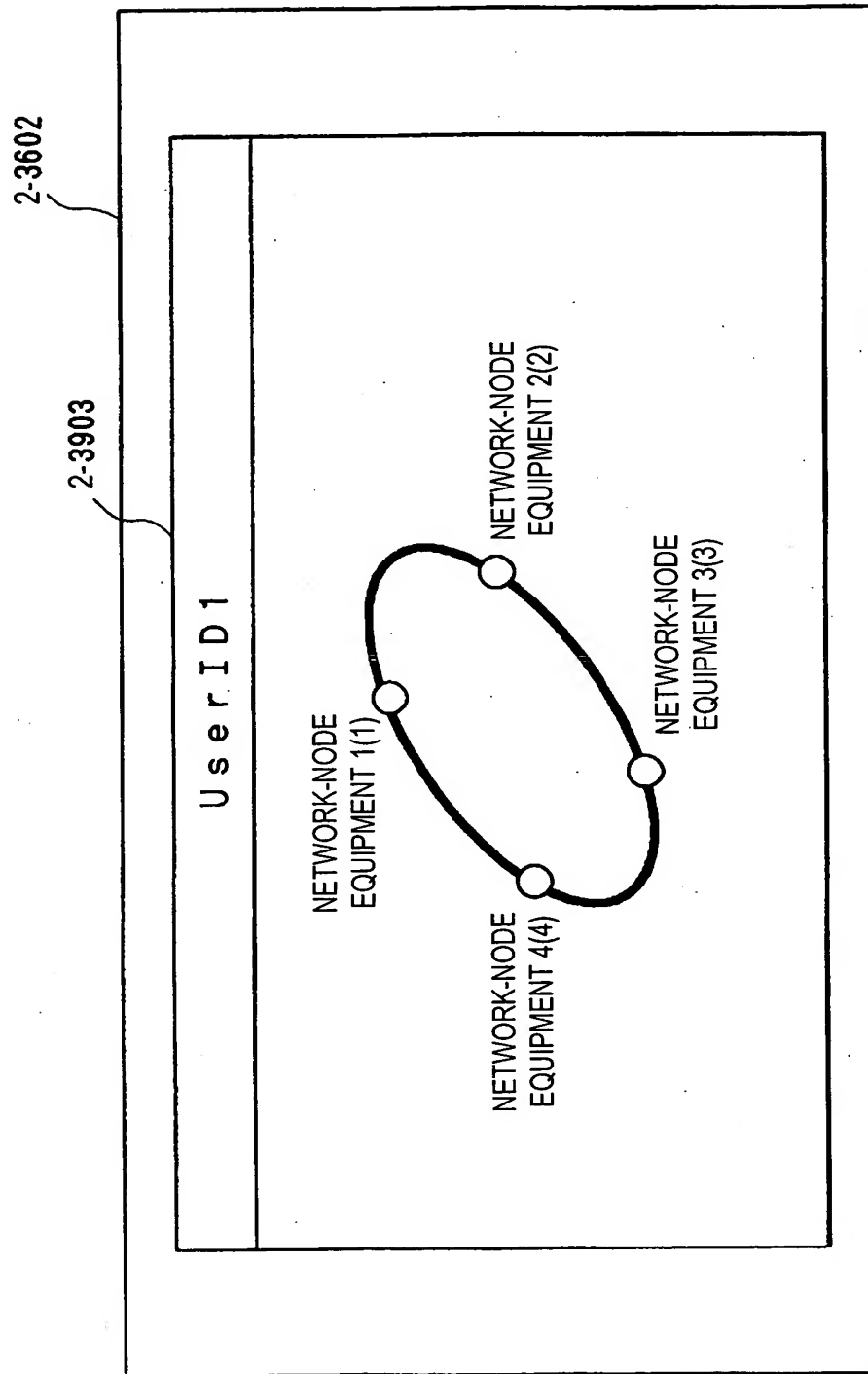
2-4001

TYPE OF LOGICAL NETWORK TOPOLOGY	RING		RING		RING		RING	
SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT	1		2		3		4	
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT	1		2		3		4	
USER ID	1		1		1		1	
WAVELENGTH IN USE	$\lambda\delta$	$\lambda\alpha$	$\lambda\alpha$	$\lambda\beta$	$\lambda\beta$	$\lambda\gamma$	$\lambda\gamma$	$\lambda\delta$
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT	1	2	1	3	2	4	3	1
TRANSMITTING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k
RECEIVING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT	0k	0k	0k	0k	0k	0k	0k	0k
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	2		2		2		2	
ADDING BANDWIDTH OF LINK								
LENGTH OF TIME FOR INCREASING BANDWIDTH								

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FIG. 2-35



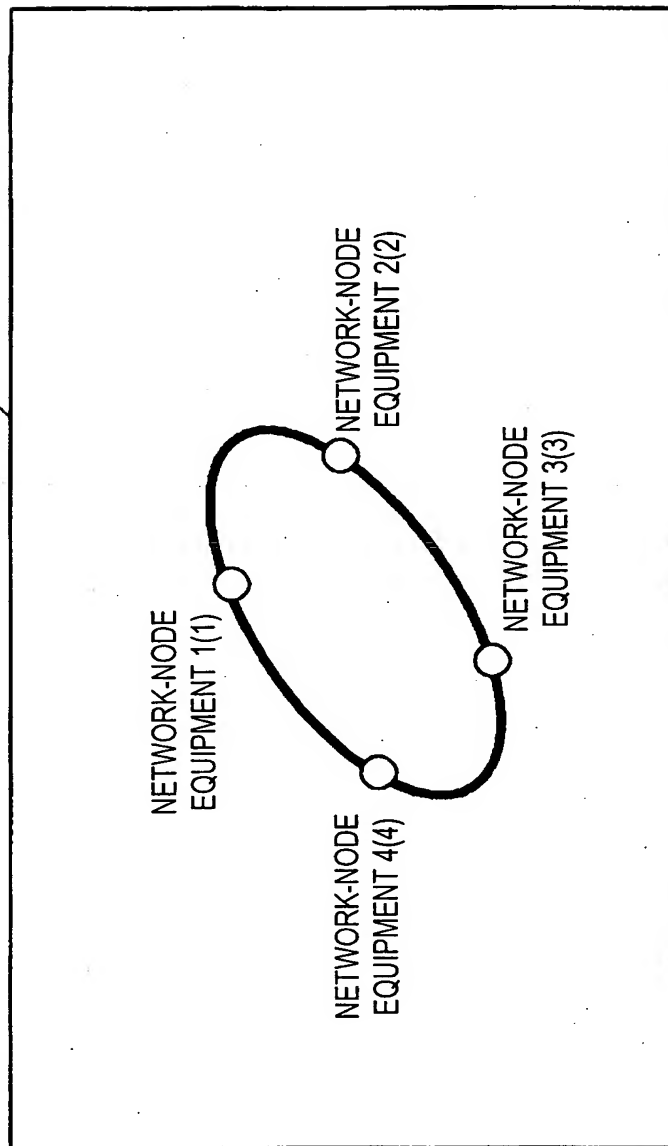
2-4003

FIG. 2-36

TYPE OF LOGICAL NETWORK TOPOLOGY	RING		RING		RING		RING	
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT	1		2		3		4	
WAVELENGTH IN USE	$\lambda\delta$	$\lambda\alpha$	$\lambda\alpha$	$\lambda\beta$	$\lambda\beta$	$\lambda\gamma$	$\lambda\gamma$	$\lambda\delta$
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT	1	2	1	3	2	4	3	1
TRANSMITTING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k
RECEIVING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT	0k	0k	0k	0k	0k	0k	0k	0k
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	2		2		2		2	
ADDING BANDWIDTH OF LINK								
LENGTH OF TIME FOR INCREASING BANDWIDTH								

FIG. 2-37

2-4004



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FIG. 2-38

2-4005

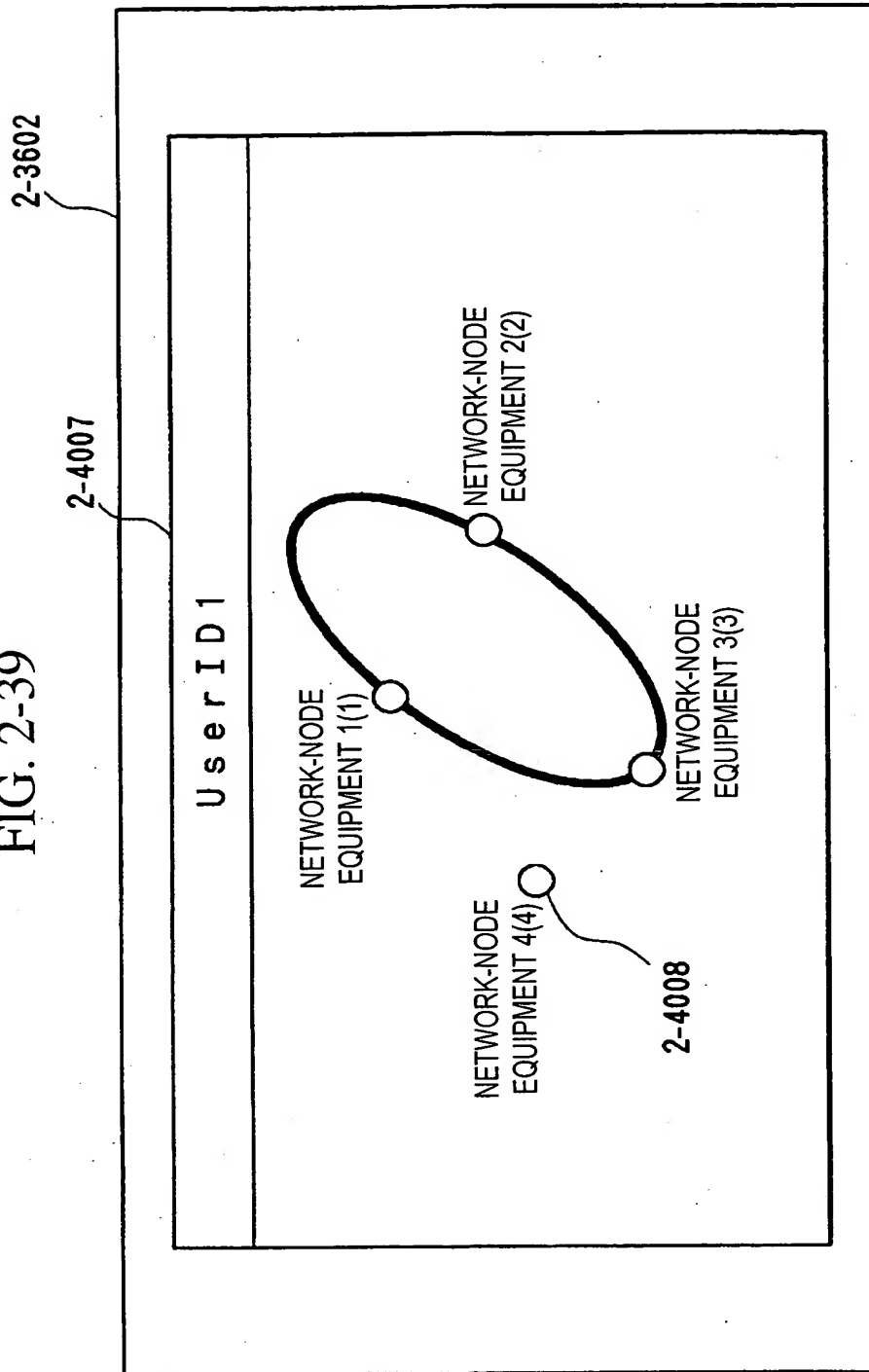
TYPE OF LOGICAL NETWORK TOPOLOGY	RING				RING				RING				RING			
SPECIFIC MANAGEMENT NUMBER OF NETWORK-NODE EQUIPMENT	1				2				3				4			
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT	1				2				3				4			
USER ID	1				1				1				1			
WAVELENGTH IN USE	$\lambda\delta$	$\lambda\alpha$	$\lambda\beta$	$\lambda\gamma$	$\lambda\alpha$	$\lambda\beta$	$\lambda\gamma$	$\lambda\delta$	$\lambda\alpha$	$\lambda\beta$	$\lambda\gamma$	$\lambda\delta$	$\lambda\alpha$	$\lambda\beta$	$\lambda\gamma$	$\lambda\delta$
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT	1	2	1	3	2	3	4	1	2	3	4	1	2	3	4	1
TRANSMITTING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
RECEIVING STATUS OF WDM SIGNAL	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k	0k
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	2				2				2				0			
ADDING BANDWIDTH OF LINK																
LENGTH OF TIME FOR INCREASING BANDWIDTH																

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FIG. 2-39



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FIG. 2-40

2-4009

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK-NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	8	0	E
1	2003.02	0	0	8	0	E
1	2003.03	0	0	8	0	E
1	2003.04	0	0	8	0	E
1	2003.05	-1	0	6	00	F

2-4010

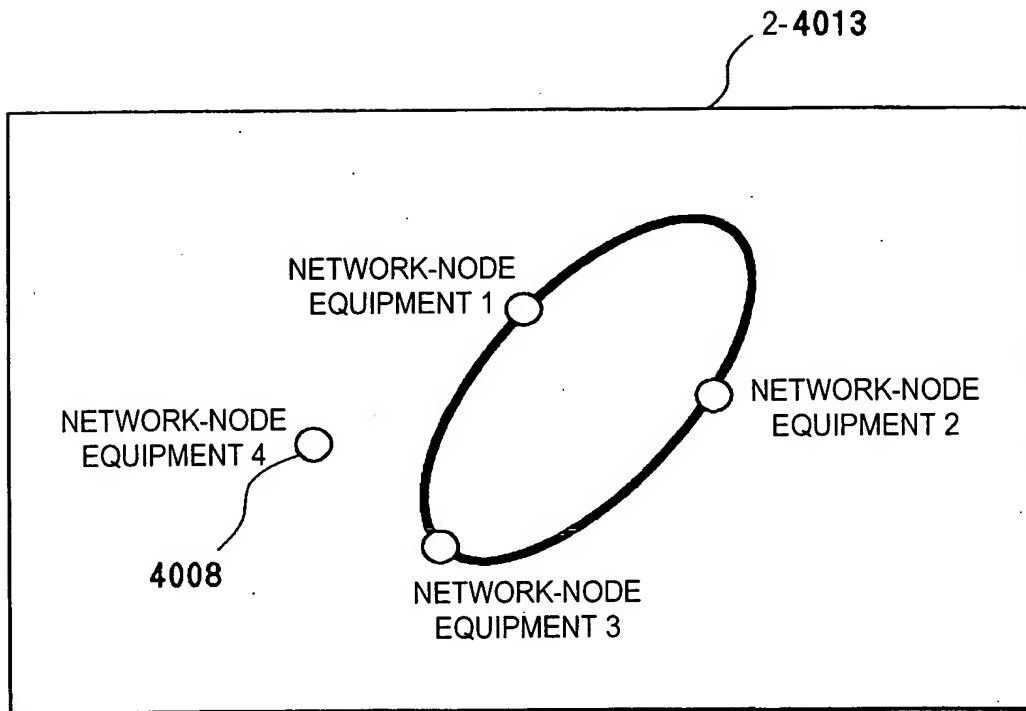
FIG. 2-41

2-4011

TYPE OF LOGICAL NETWORK TOPOLOGY	RING		RING		RING		RING		RING	
	1		2		3		4		5	
SPECIFIC USER NUMBER OF NETWORK-NODE EQUIPMENT										
WAVELENGTH IN USE	$\lambda\delta$		$\lambda\alpha$		$\lambda\beta$		$\lambda\gamma$		$\lambda\delta$	
	1		2		3		4		5	
SPECIFIC MANAGEMENT NUMBER OF OTHER END OF NETWORK-NODE EQUIPMENT	Ok		Ok		Ok		Ok		Off	
TRANSMITTING STATUS OF WDM SIGNAL	Ok		Ok		Ok		Ok		NG	
RECEIVING STATUS OF WDM SIGNAL	Ok		Ok		Ok		Ok		Ok	
CONNECTING STATUS OF NETWORK-NODE EQUIPMENT	Ok		Ok		Ok		Ok		Ok	
NUMBER OF OPTICAL LINKS OF NETWORK-NODE EQUIPMENT	2		2		2		2		0	
ADDING BANDWIDTH OF LINK										
LENGTH OF TIME FOR INCREASING BANDWIDTH										

2-4011

FIG. 2-42



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FIG. 2-43

2-4014

USER ID	YEAR AND MONTH	INCREASED/DECREASED NUMBER OF NETWORK- NODE EQUIPMENTS	NUMBER OF INCREASING BANDWIDTH	TOTAL NUMBER OF WAVELENGTH PATH LINKS	DISCOUNT	CHARGE
1	2003.01	0	0	8	0	E
1	2003.02	0	0	8	0	E
1	2003.03	0	0	8	0	E
1	2003.04	0	0	8	0	E
1	2003.05	-1	0	6	0	F

2-4015

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FIG. 3-1

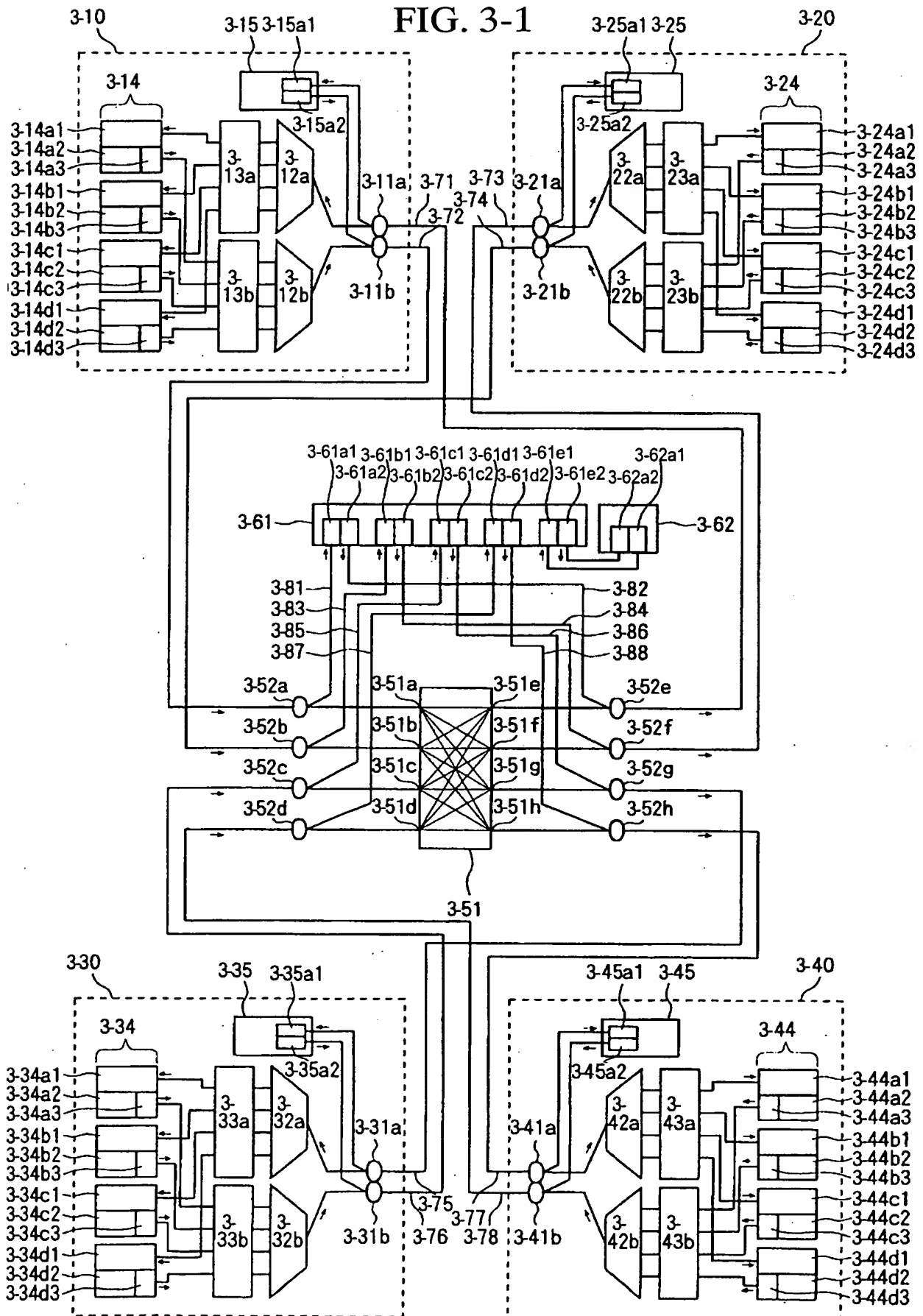


FIG. 3-2A

OPTICAL INPUT PORT

OPTICAL OUTPUT PORT

	1 (3-51e)	2 (3-51f)	3 (3-51g)	4 (3-51h)
1 (3-51a)	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
2 (3-51b)	$\lambda 4$	$\lambda 1$	$\lambda 2$	$\lambda 3$
3 (3-51c)	$\lambda 3$	$\lambda 4$	$\lambda 1$	$\lambda 2$
4 (3-51d)	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 1$

FIG. 3-2B

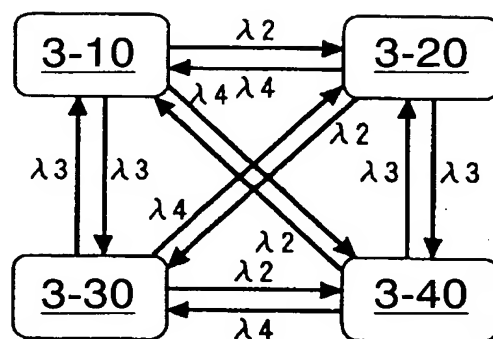


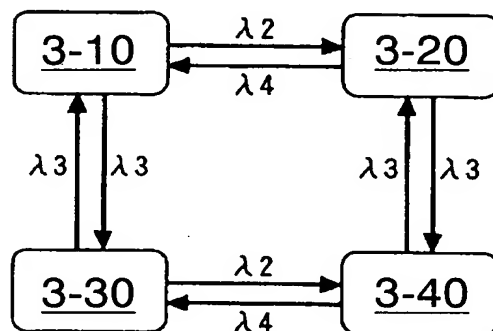
FIG. 3-3A

OPTICAL INPUT PORT

OPTICAL OUTPUT PORT

	1 (3-51e)	2 (3-51f)	3 (3-51g)	4 (3-51h)
1 (3-51a)	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
2 (3-51b)	$\lambda 4$	$\lambda 1$	$\lambda 2$	$\lambda 3$
3 (3-51c)	$\lambda 3$	$\lambda 4$	$\lambda 1$	$\lambda 2$
4 (3-51d)	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 1$

FIG. 3-3B



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 FIG. 3-4

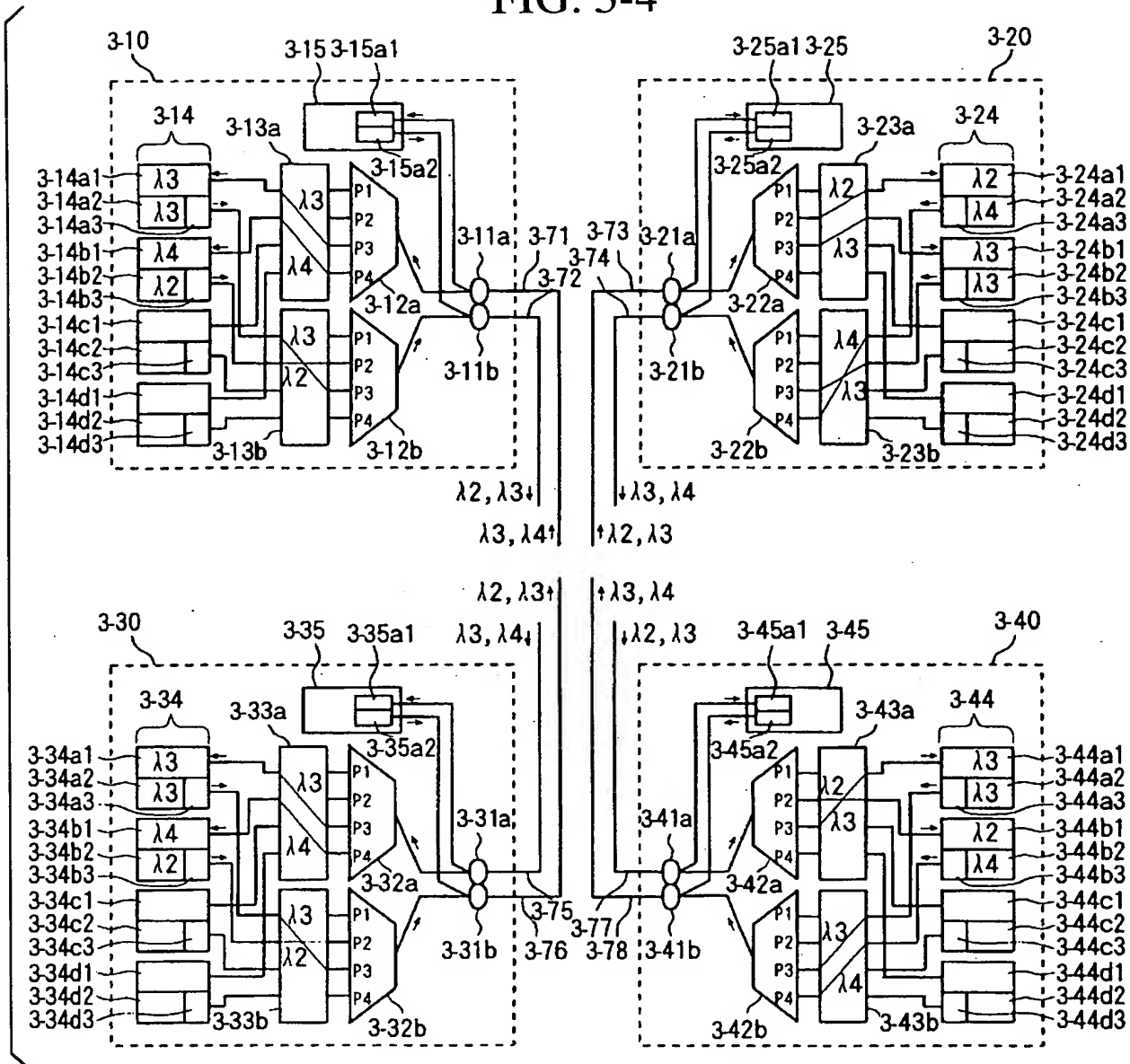
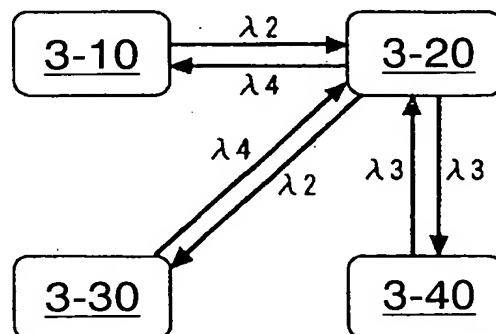


FIG. 3-5A

OPTICAL INPUT PORT
 OPTICAL OUTPUT PORT

	1 (3-51e)	2 (3-51f)	3 (3-51g)	4 (3-51h)
1 (3-51a)	λ 1	λ 2	λ 3	λ 4
2 (3-51b)	λ 4	λ 1	λ 2	λ 3
3 (3-51c)	λ 3	λ 4	λ 1	λ 2
4 (3-51d)	λ 2	λ 3	λ 4	λ 1

FIG. 3-5B



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FIG. 3-6

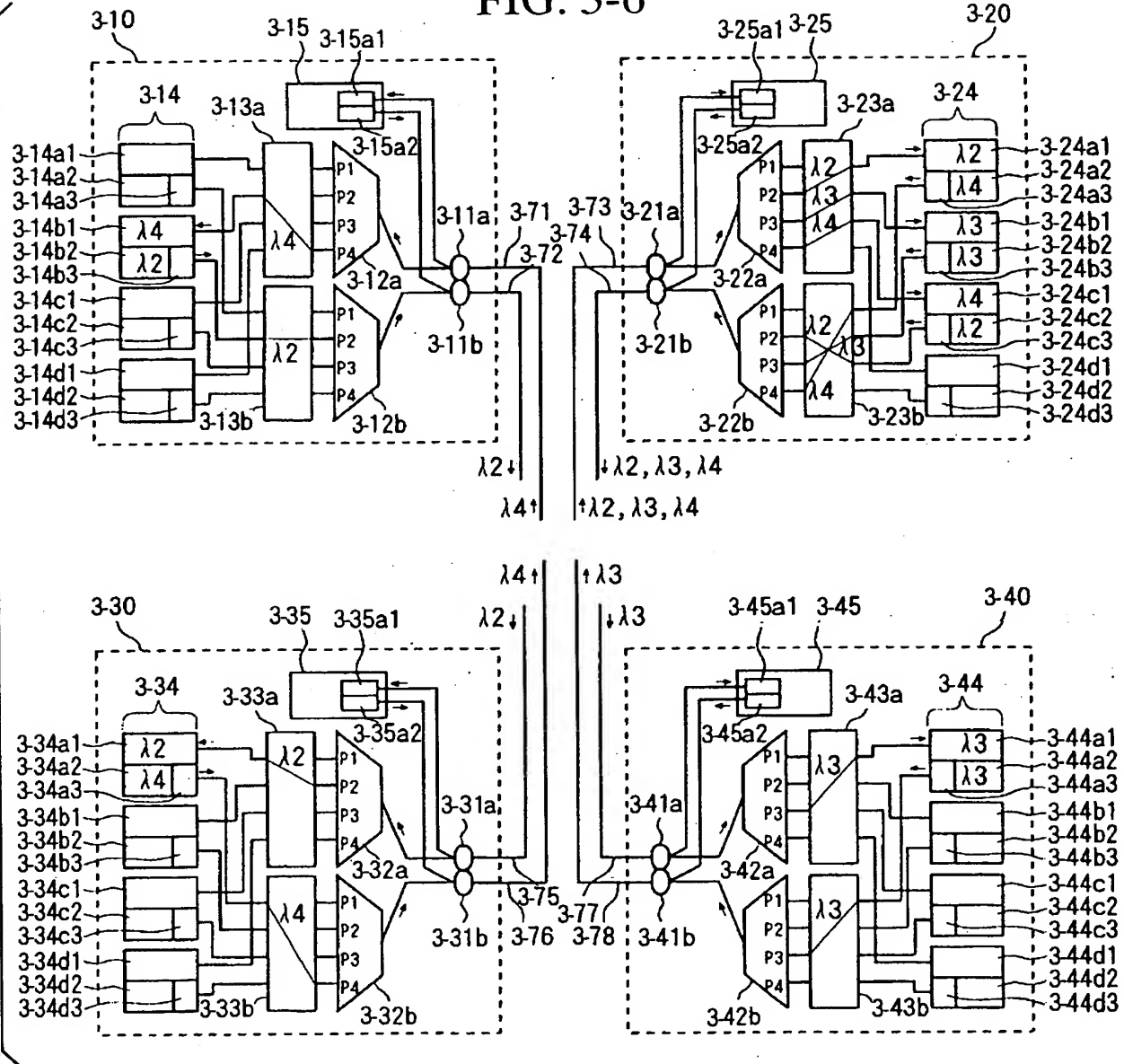
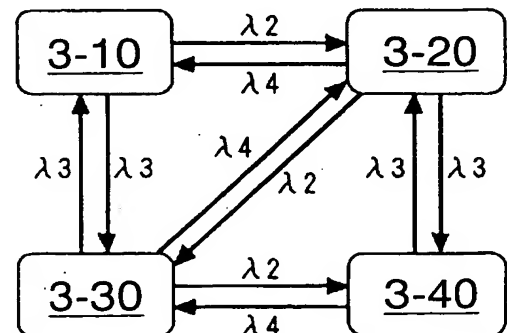


FIG. 3-7A

OPTICAL INPUT PORT
 OPTICAL OUTPUT PORT

	1 (3-51e)	2 (3-51f)	3 (3-51g)	4 (3-51h)
1 (3-51a)	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
2 (3-51b)	$\lambda 4$	$\lambda 1$	$\lambda 2$	$\lambda 3$
3 (3-51c)	$\lambda 3$	$\lambda 4$	$\lambda 1$	$\lambda 2$
4 (3-51d)	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 1$

FIG. 3-7B



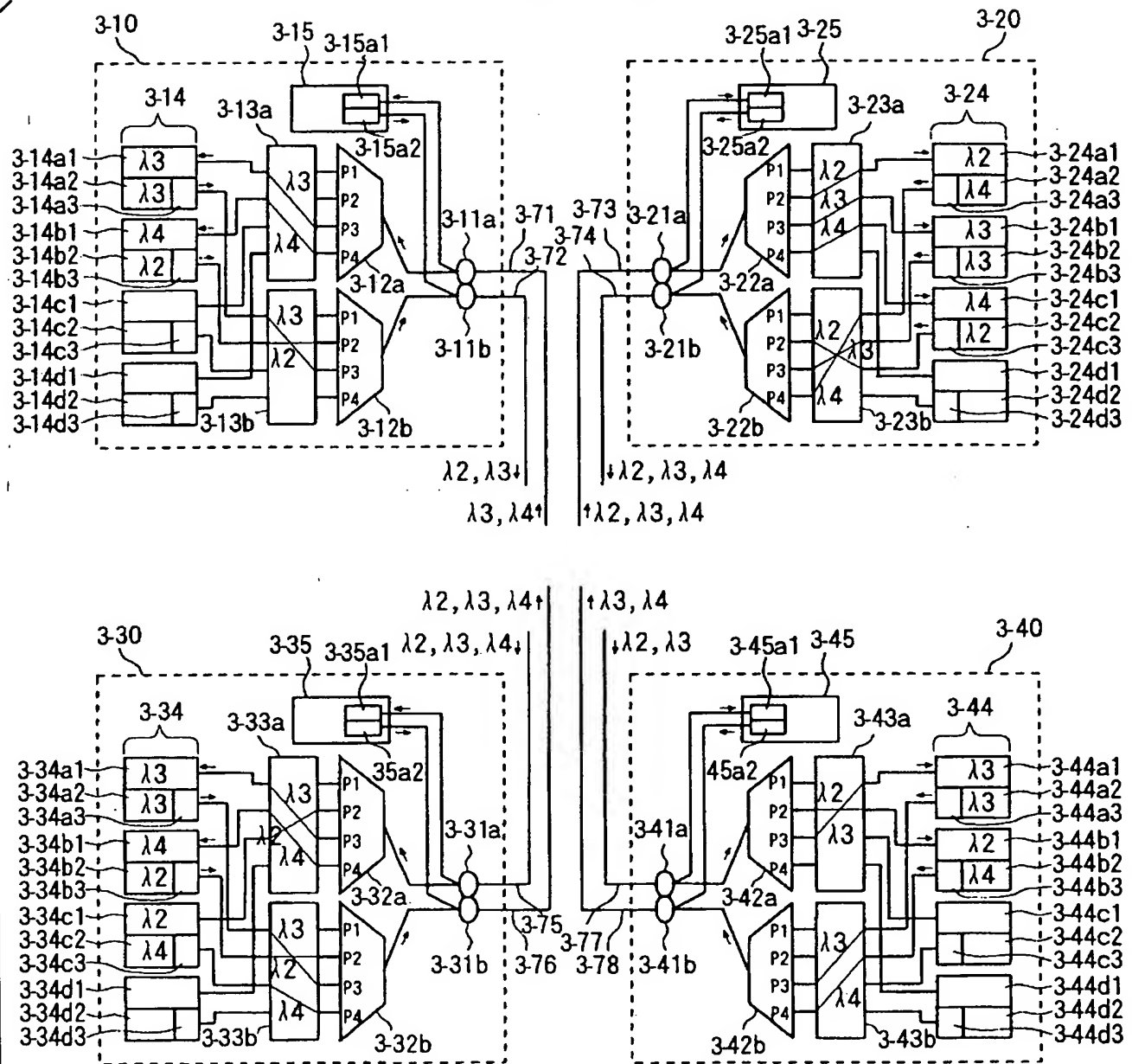


FIG. 3-9

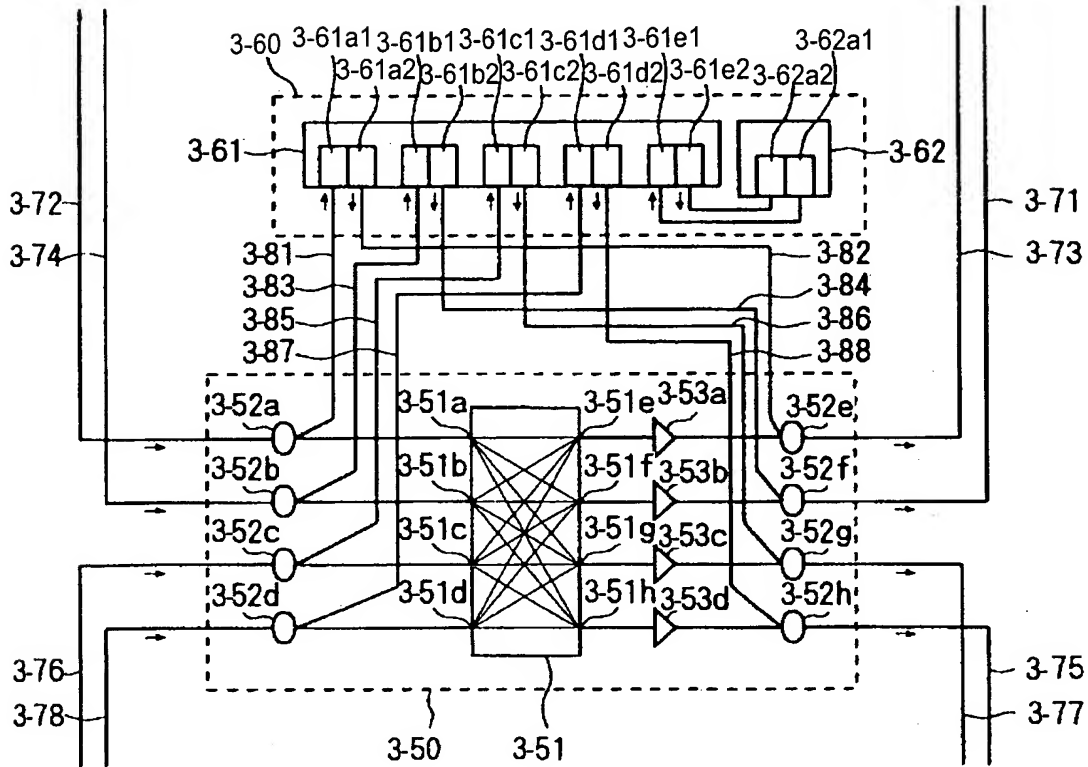


FIG. 3-10

OPTICAL INPUT PORT

OPTICAL OUTPUT PORT

	1 (3-51e)	2 (3-51f)	3 (3-51g)	4 (3-51h)
1 (3-51a)	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
2 (3-51b)	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$
3 (3-51c)	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$
4 (3-51d)	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$

FIG. 3-11

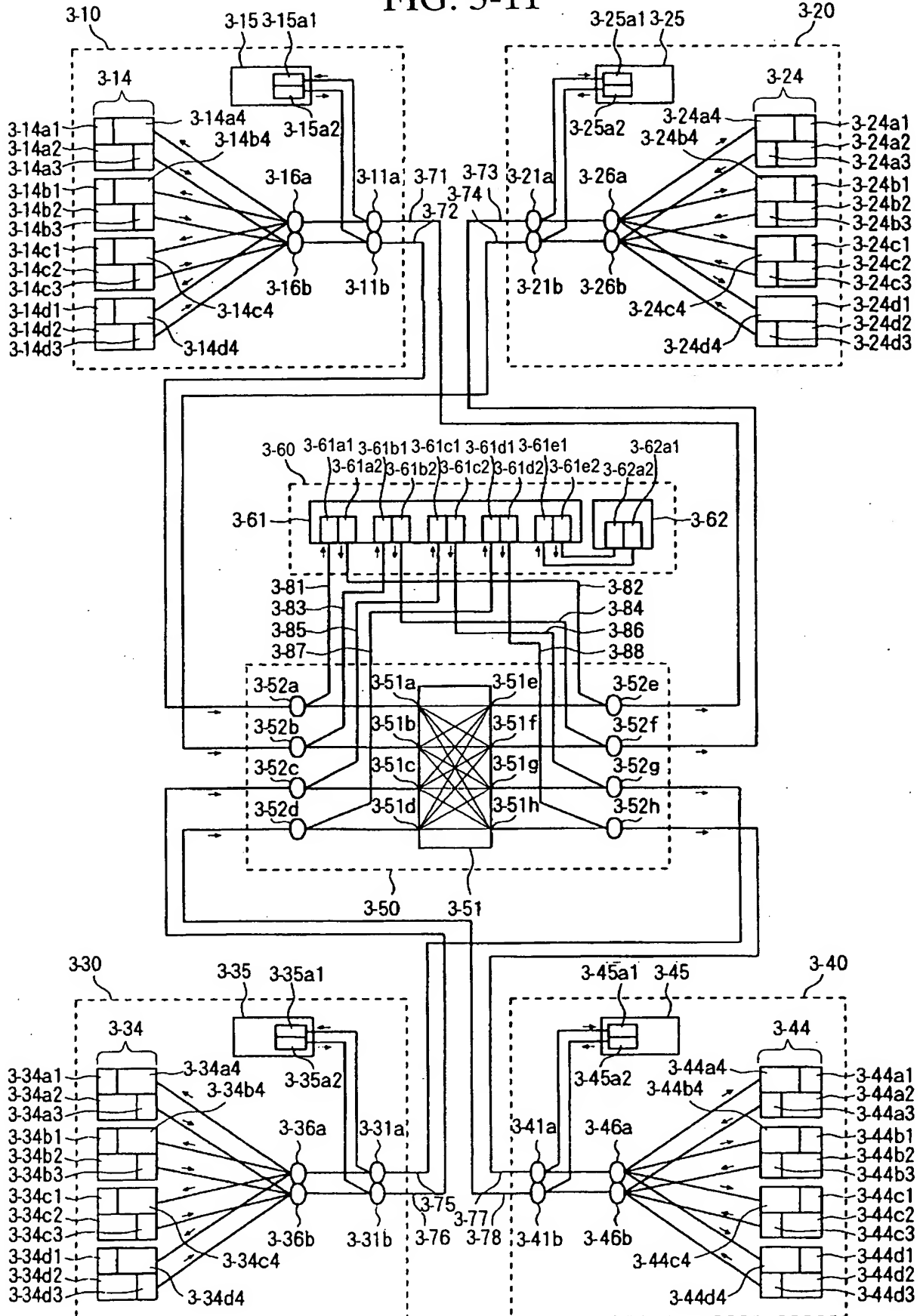
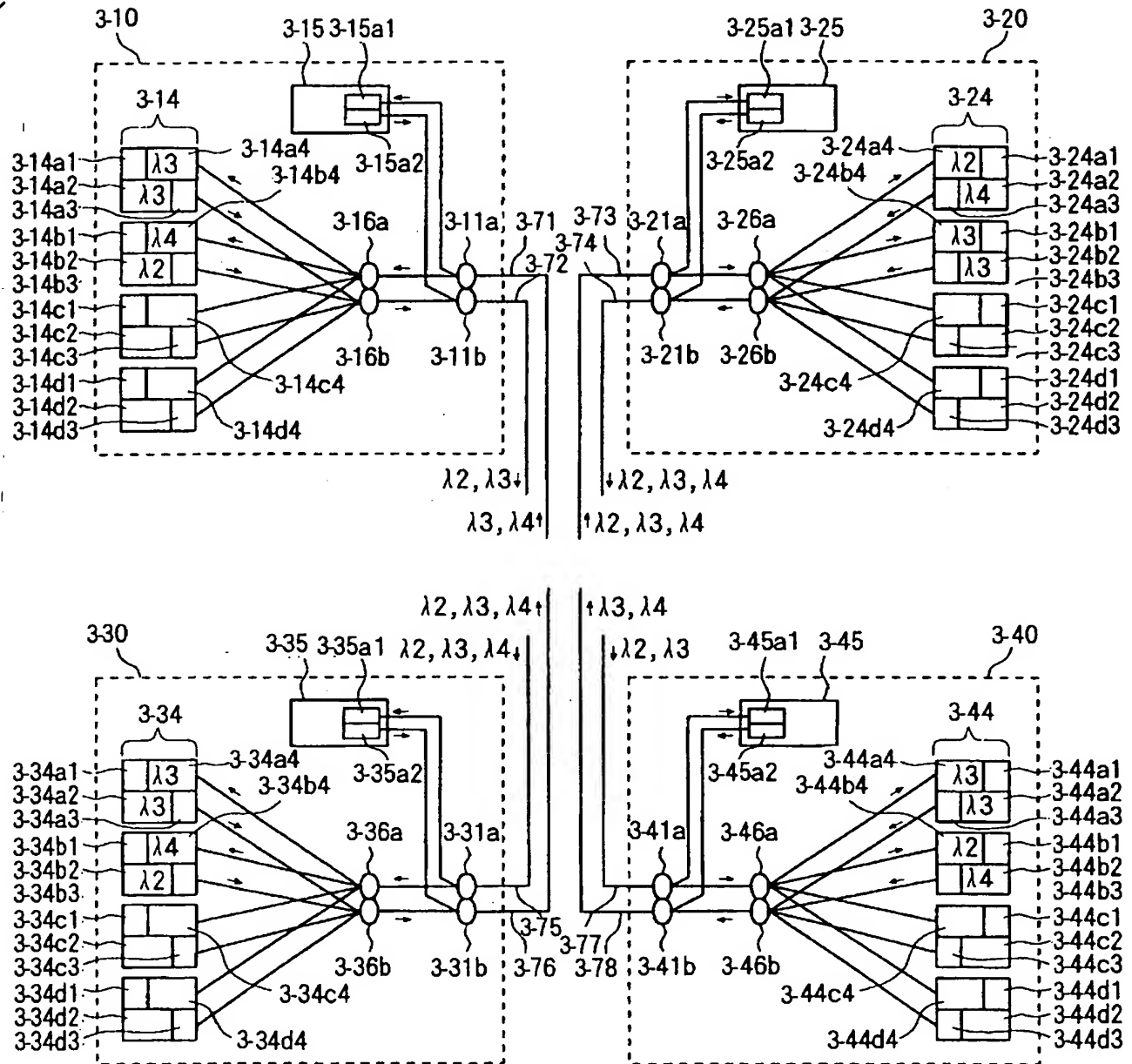


FIG. 3-12



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FIG. 3-13

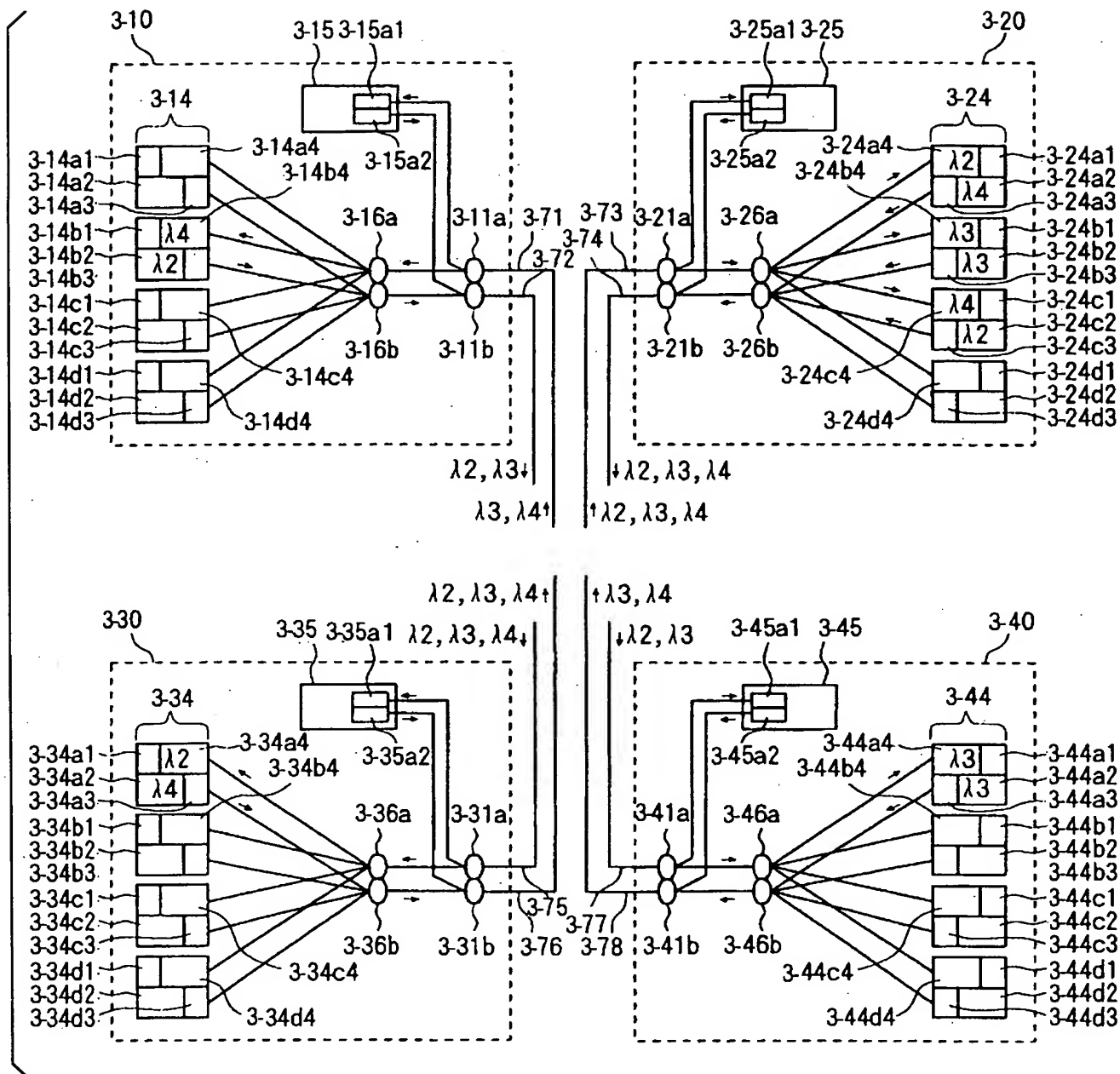
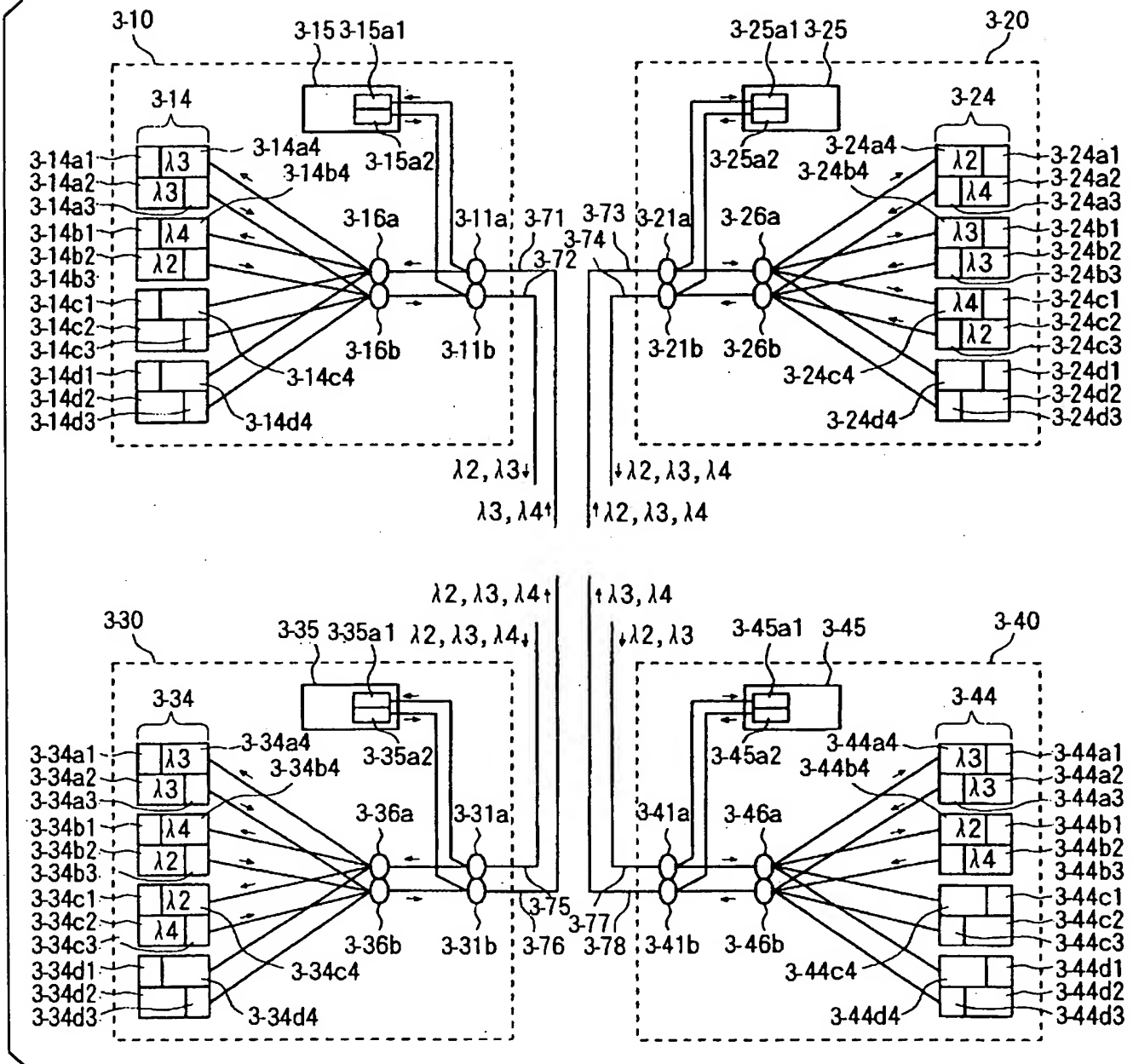
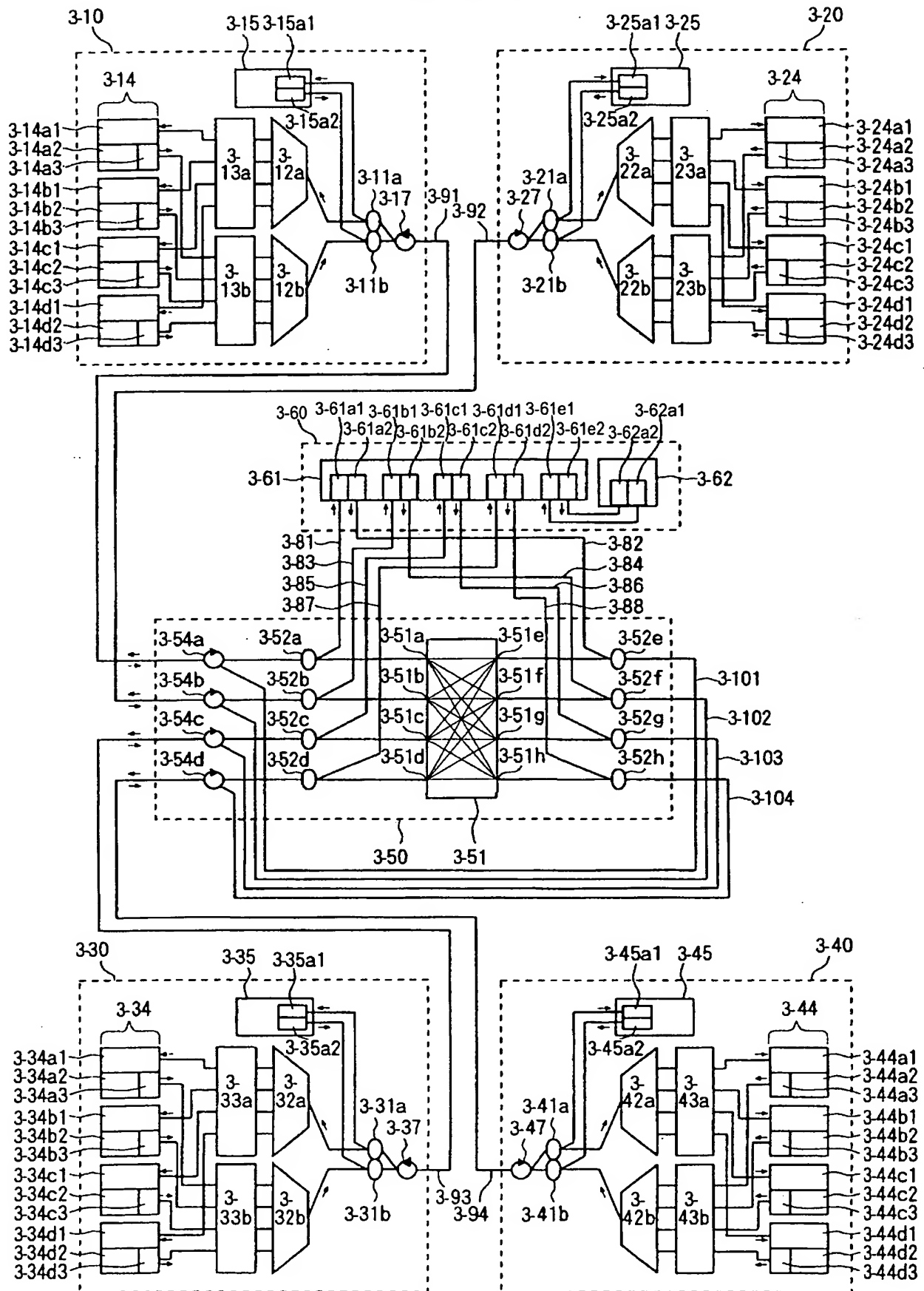


FIG. 3-14

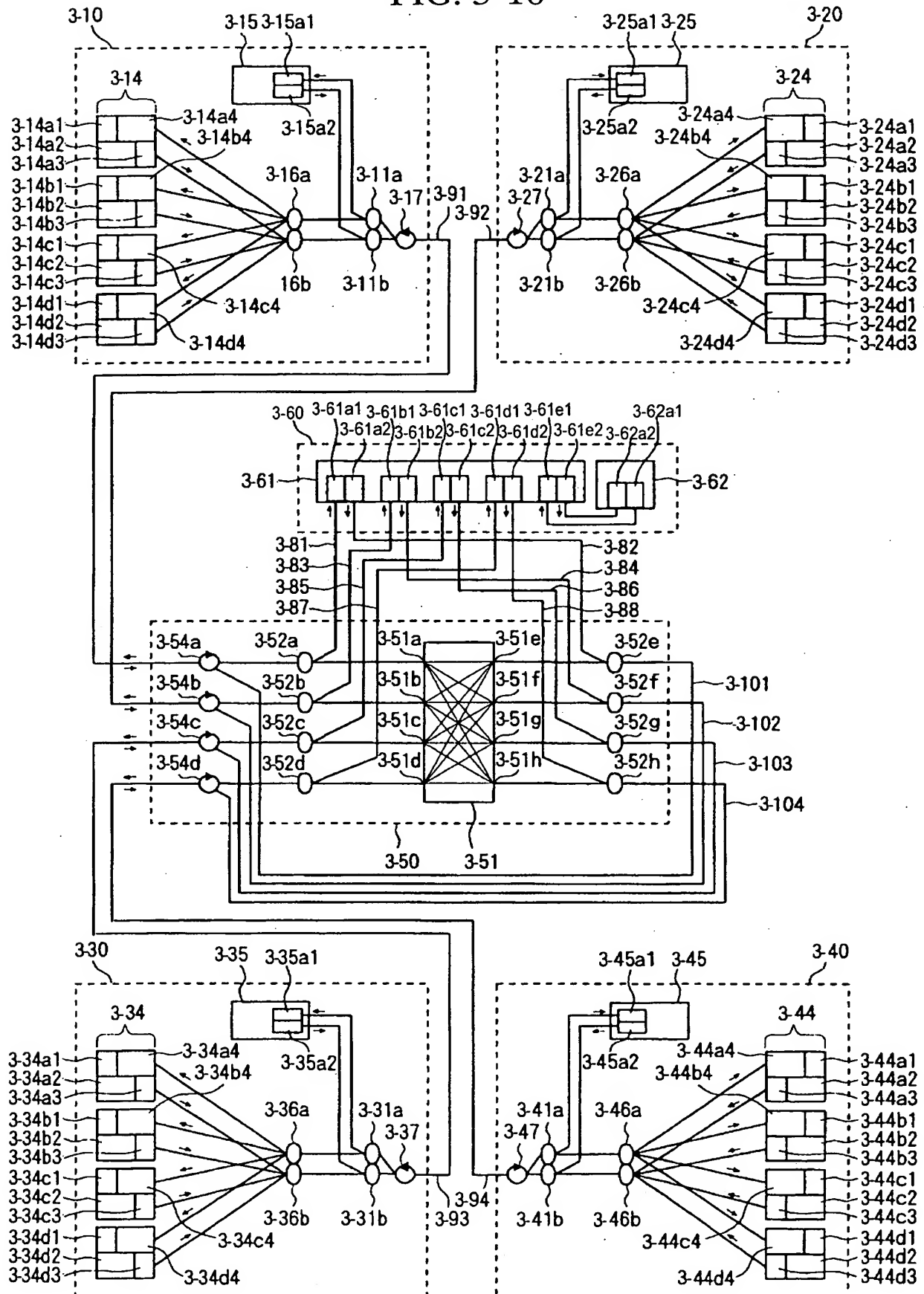


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 FIG. 3-15



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FIG. 3-16



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FIG. 3-17

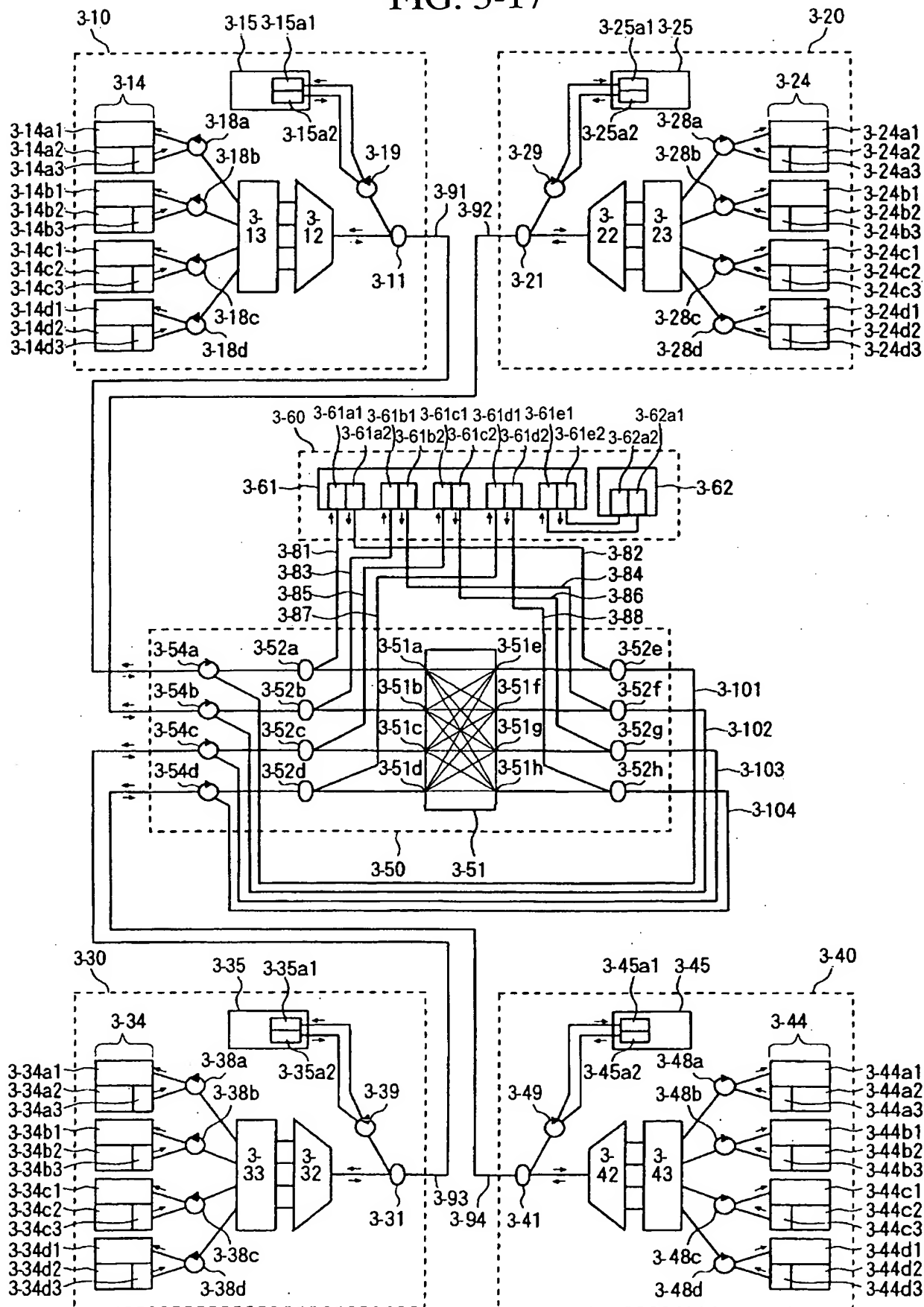
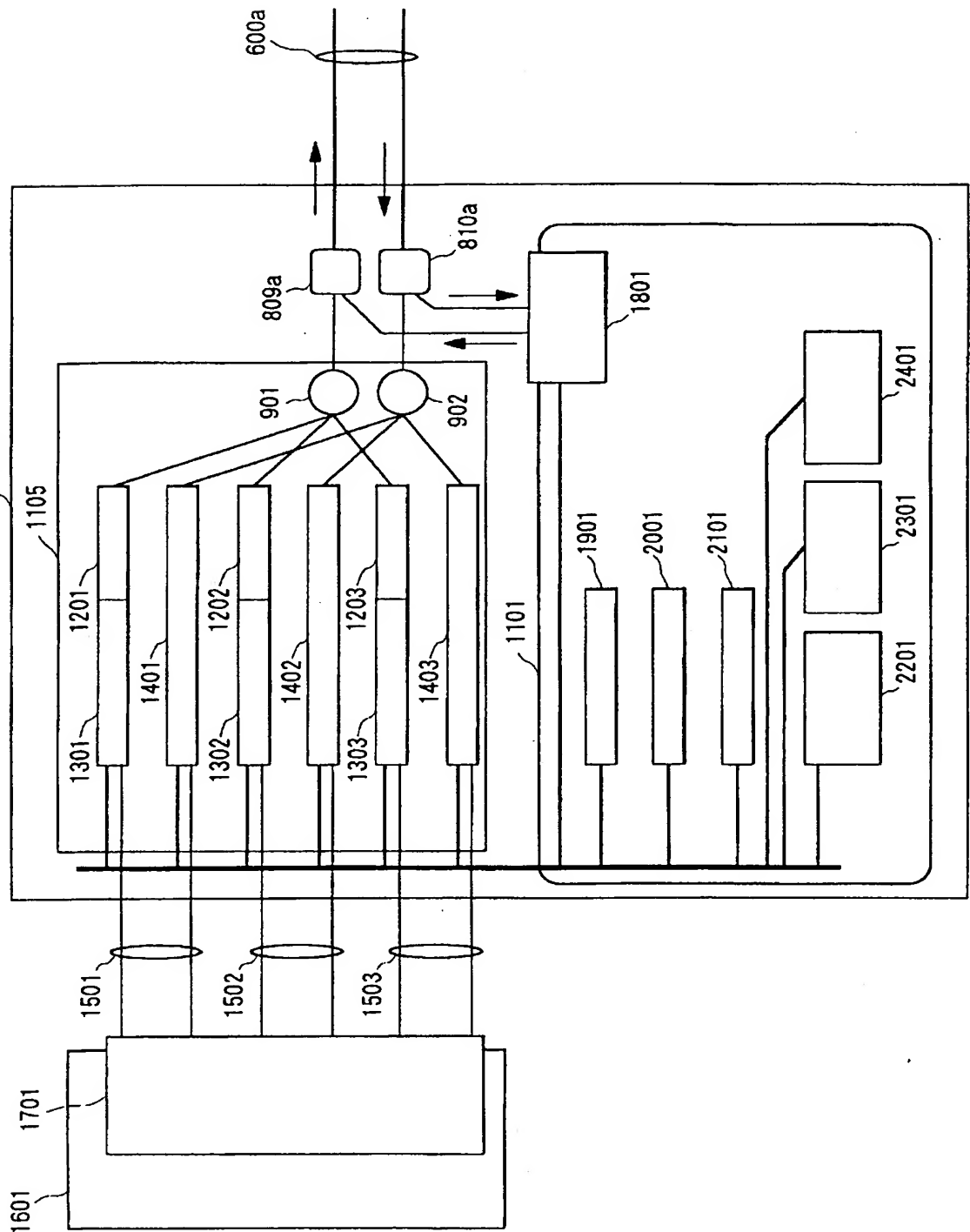


FIG. 4-1



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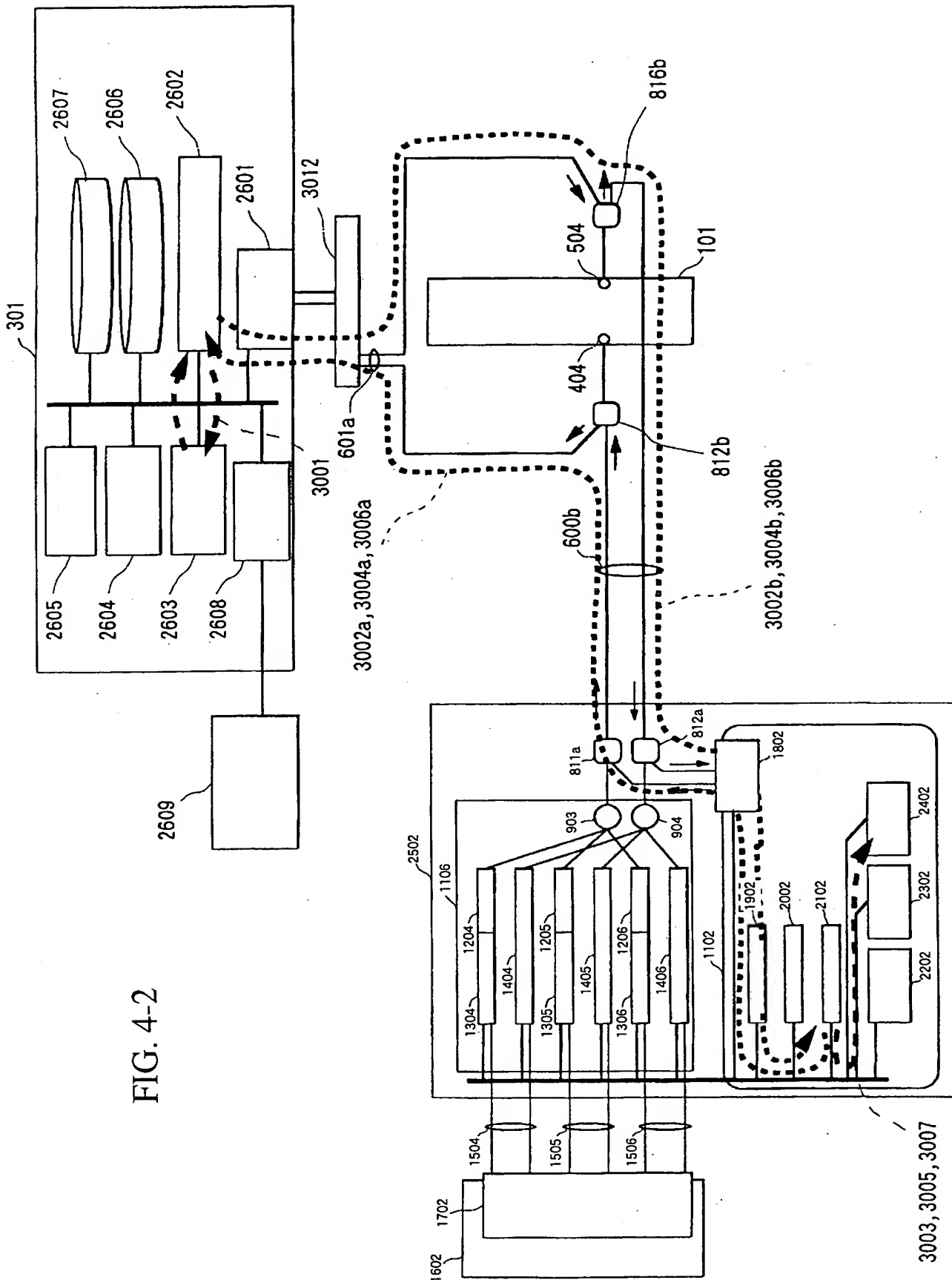
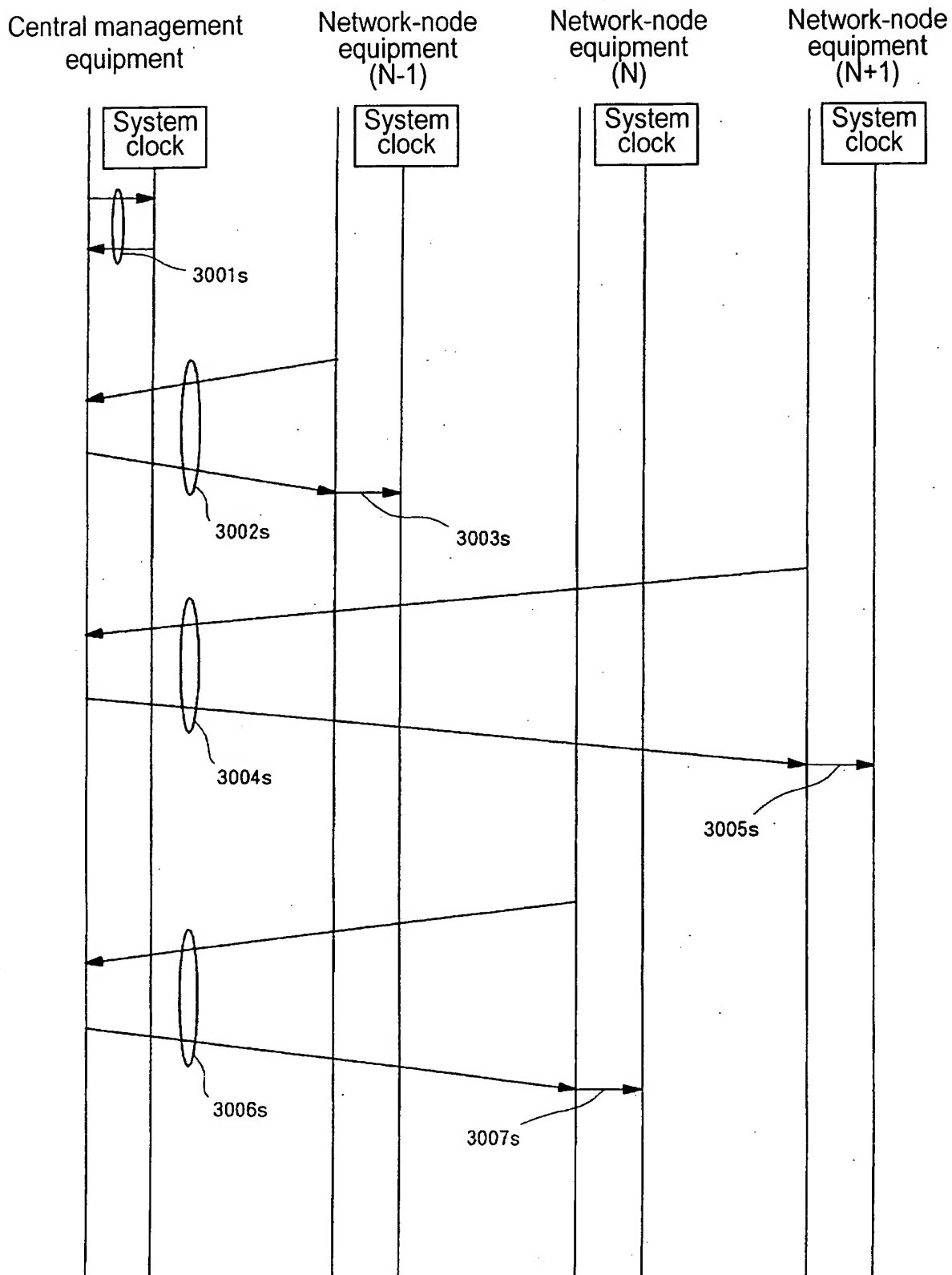


FIG. 4-2

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FIG. 4-3



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FIG. 4-4

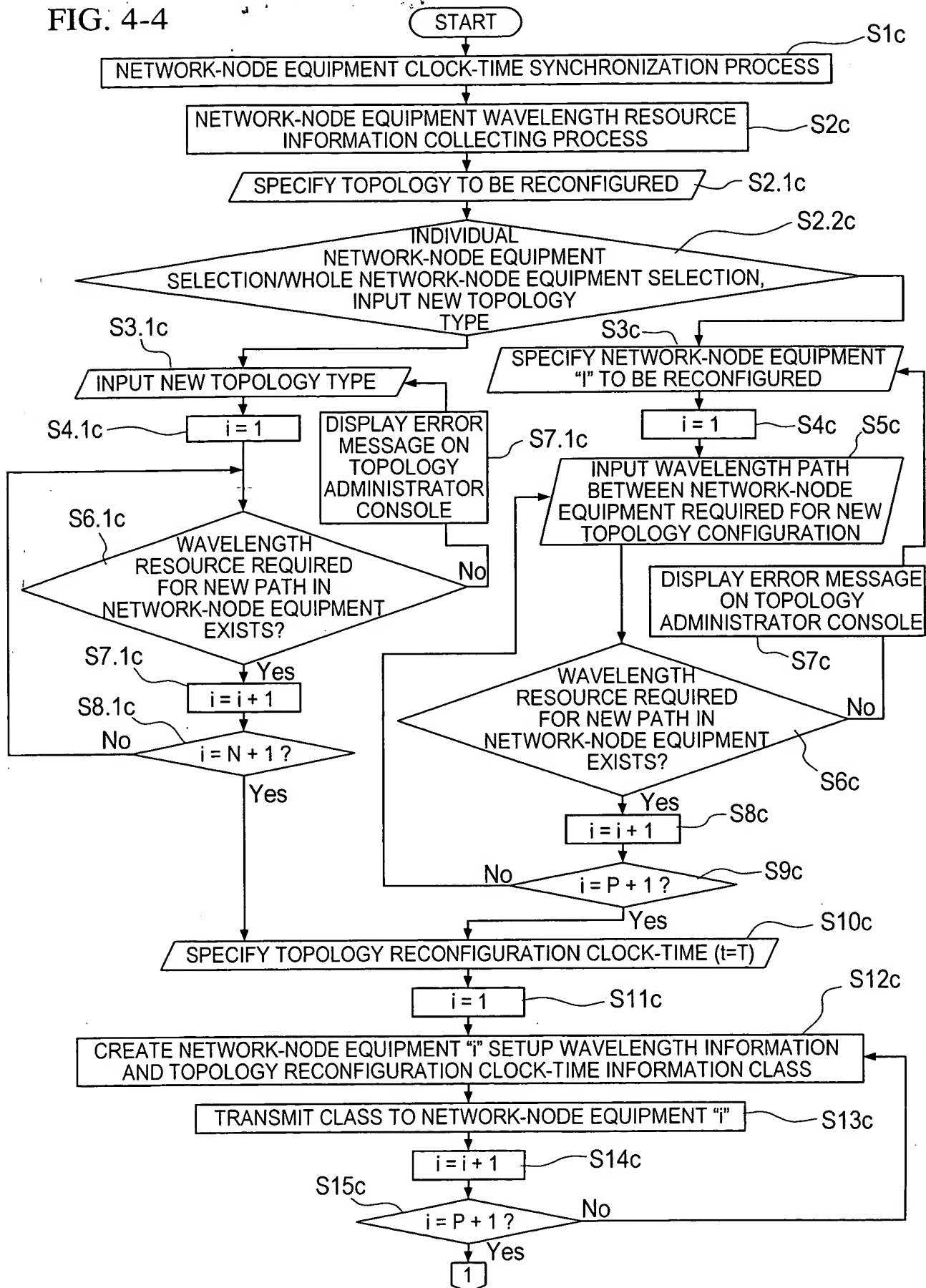


FIG. 4-5

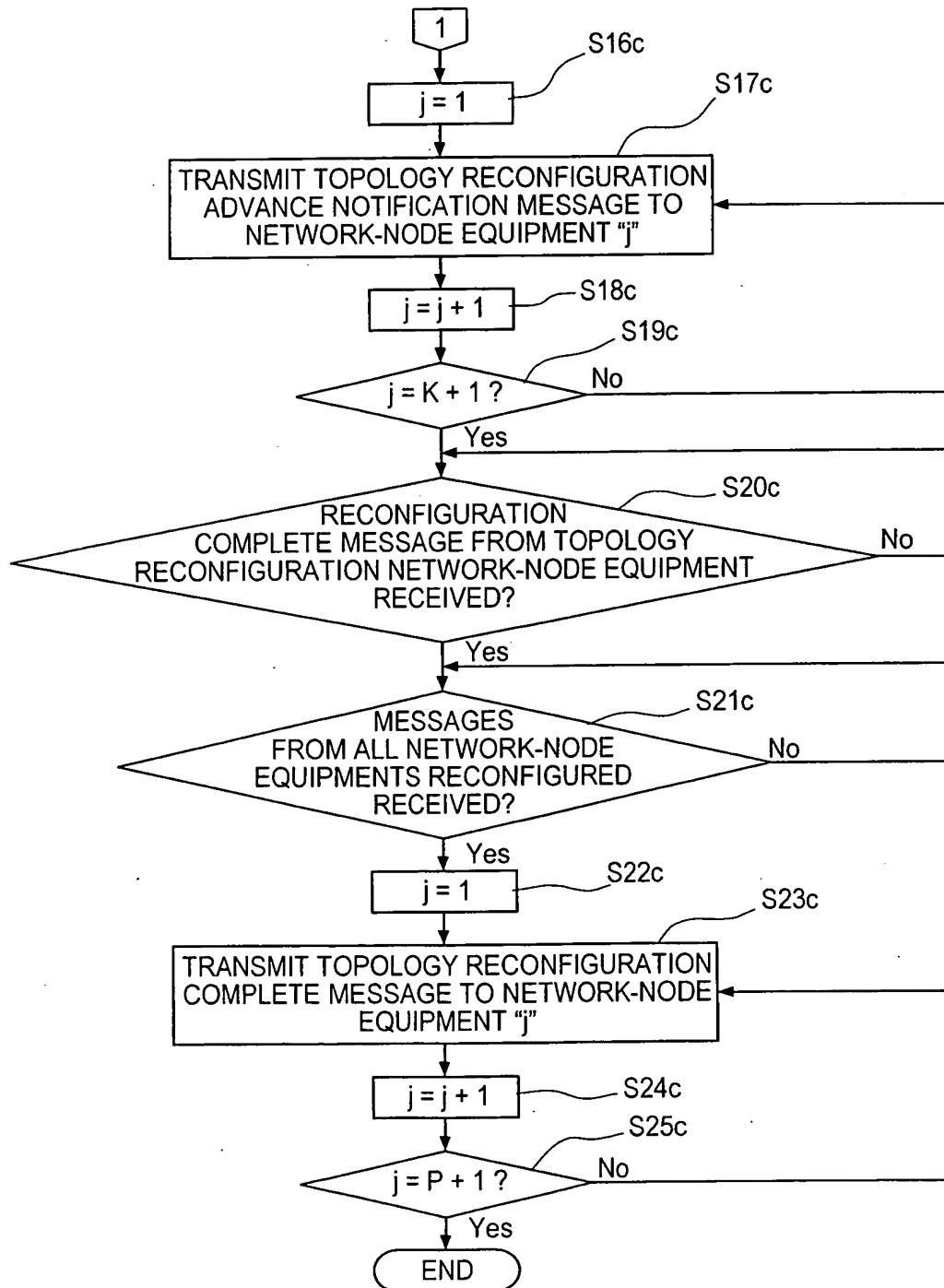


FIG. 4-6

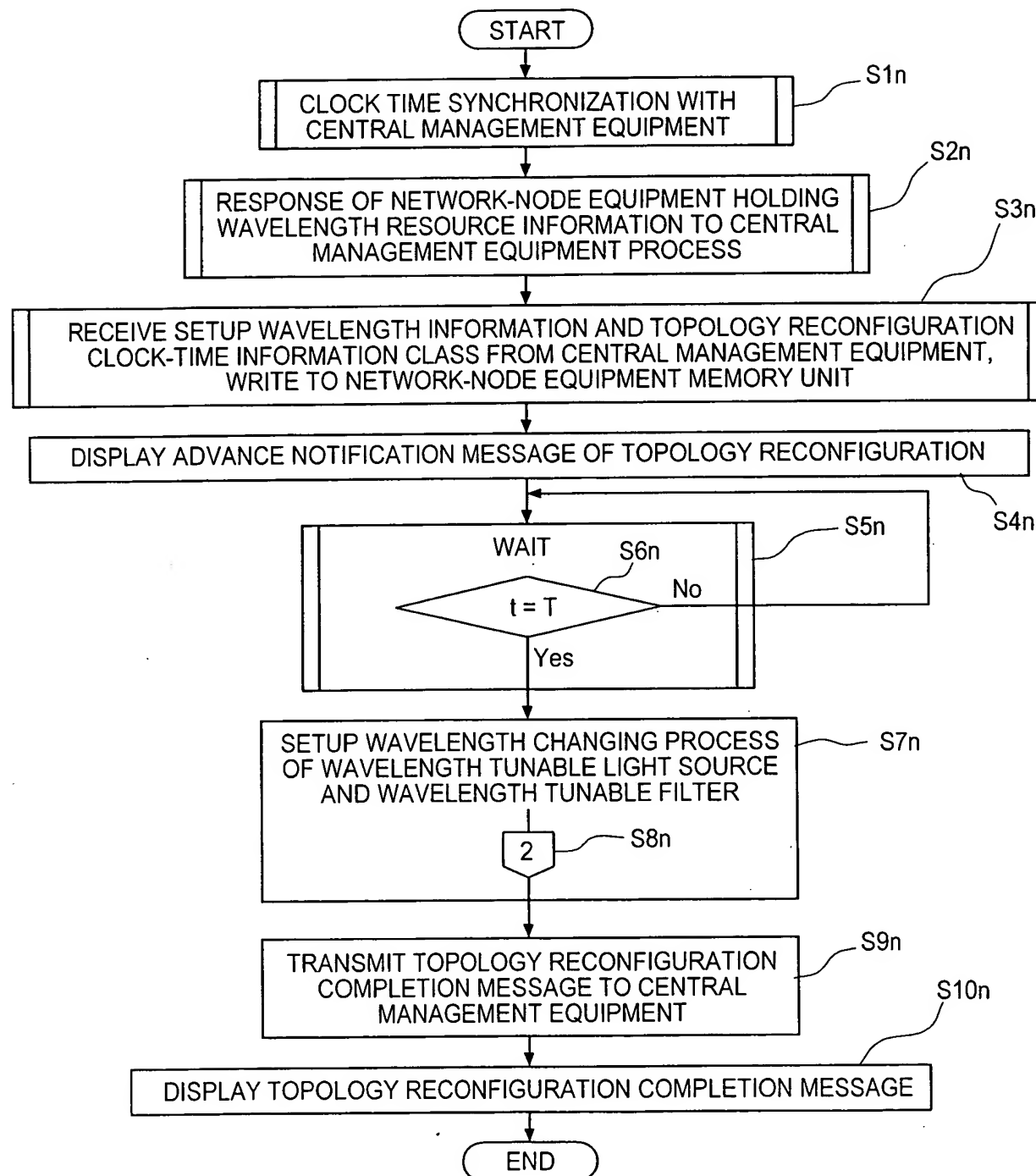


FIG. 4-7

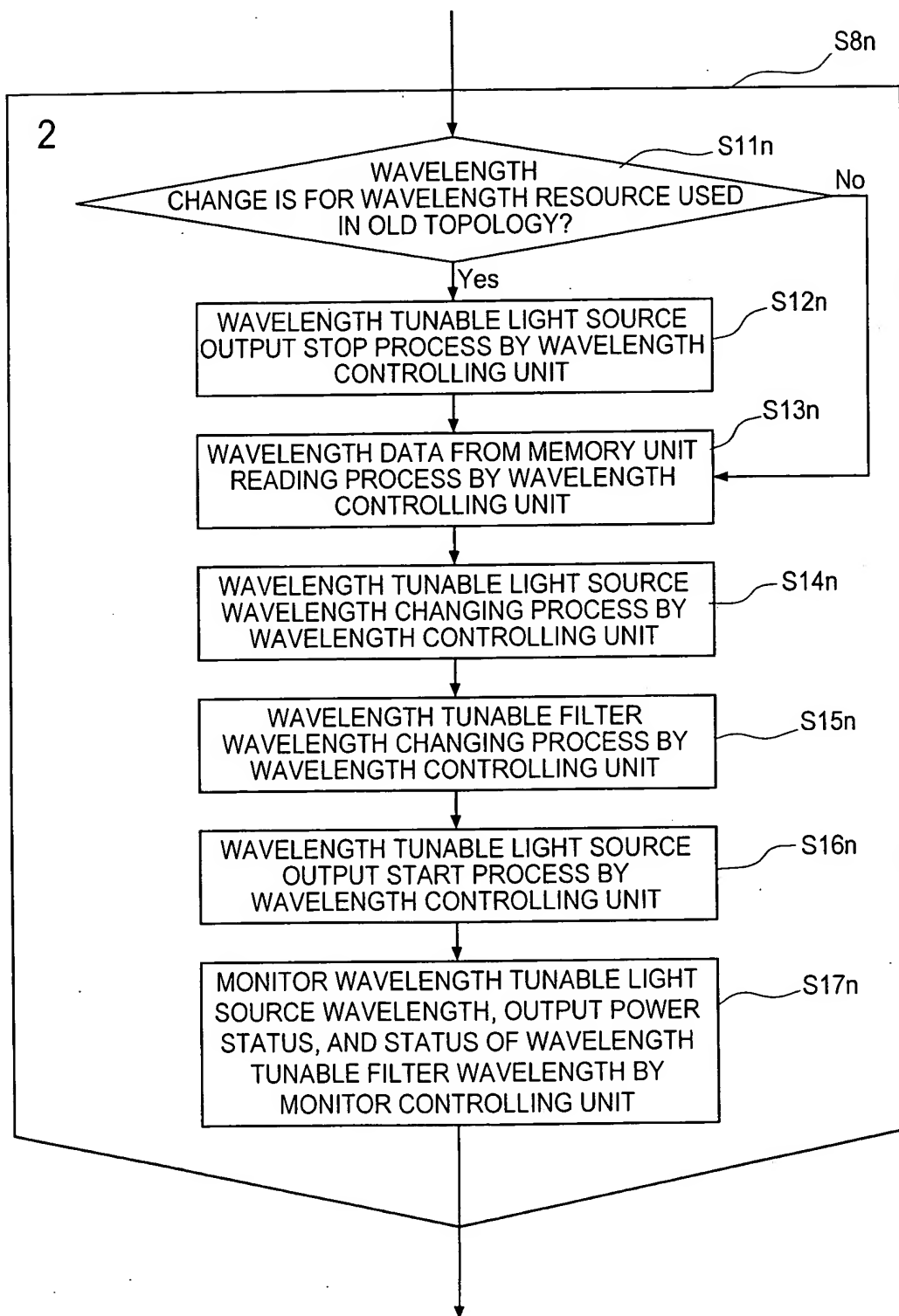


FIG. 4-8

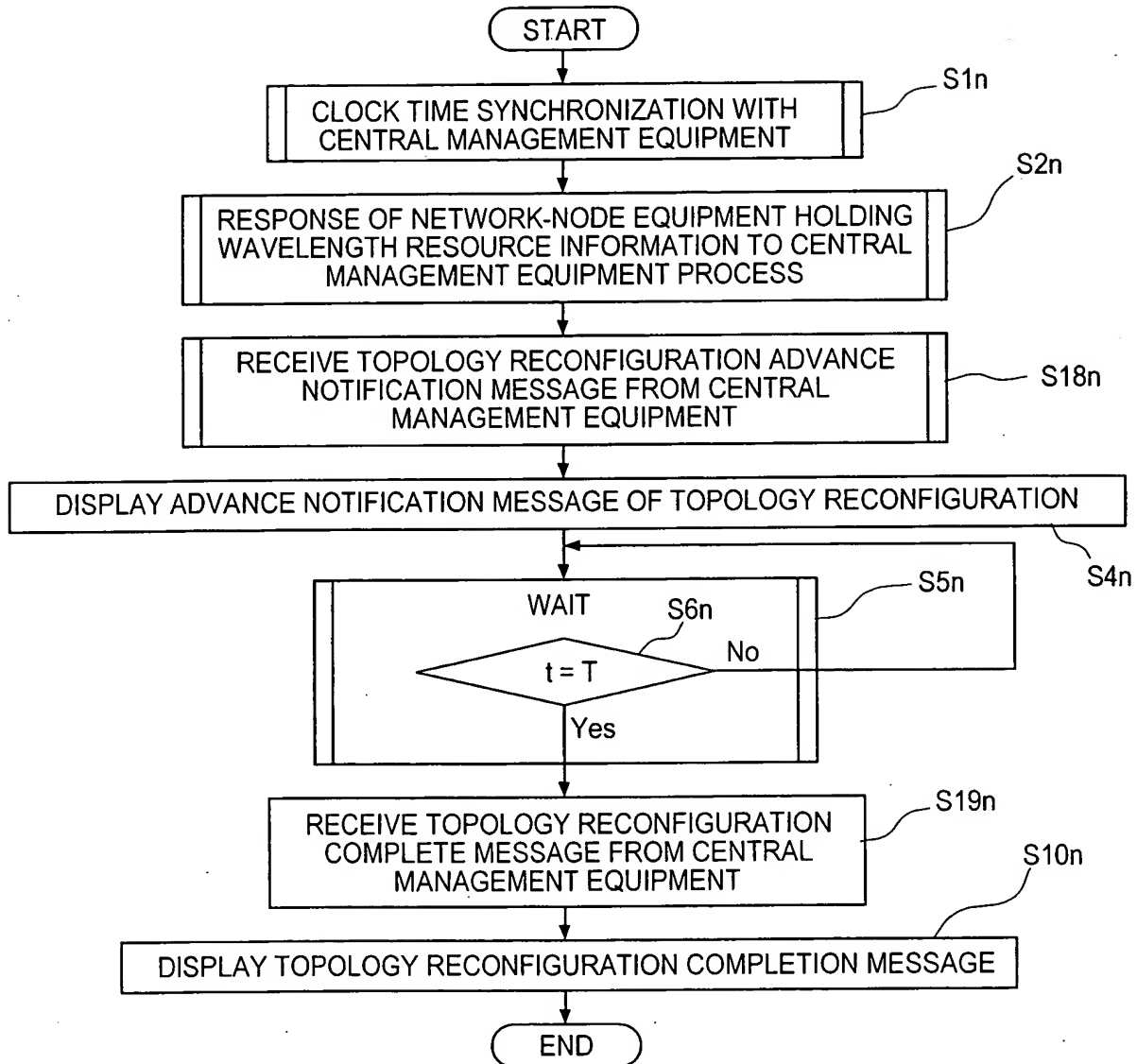
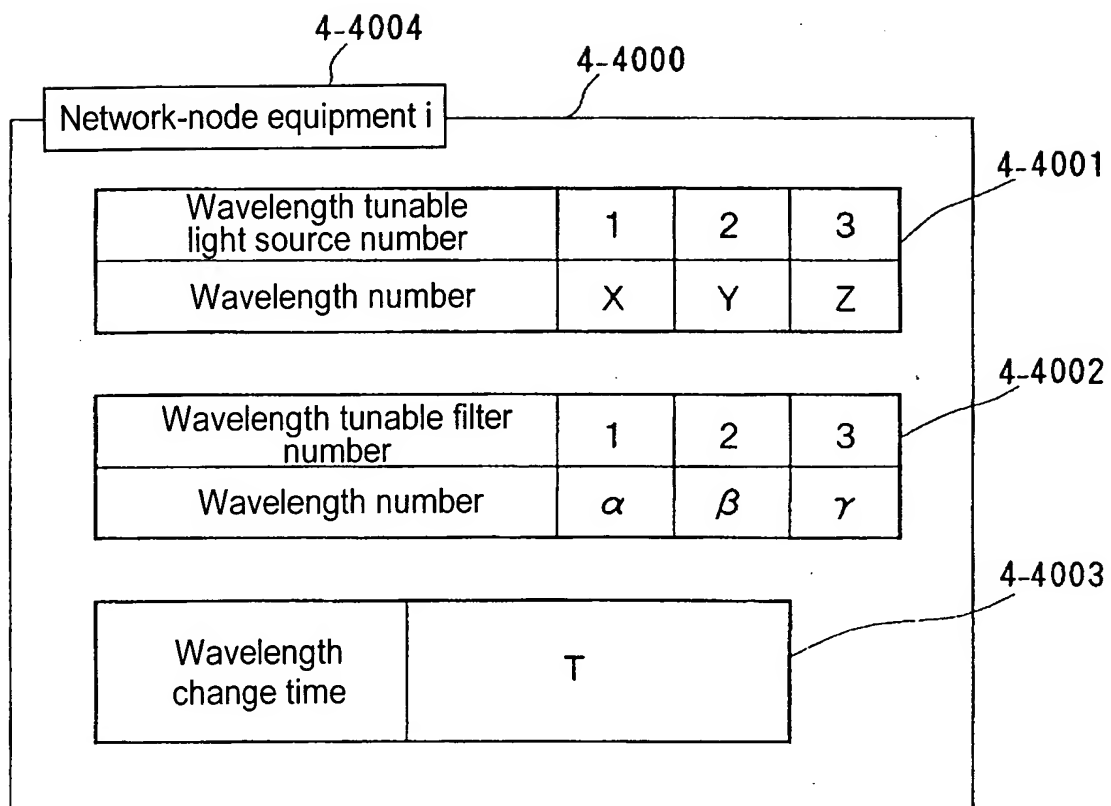


FIG. 4-9



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FIG. 4-10

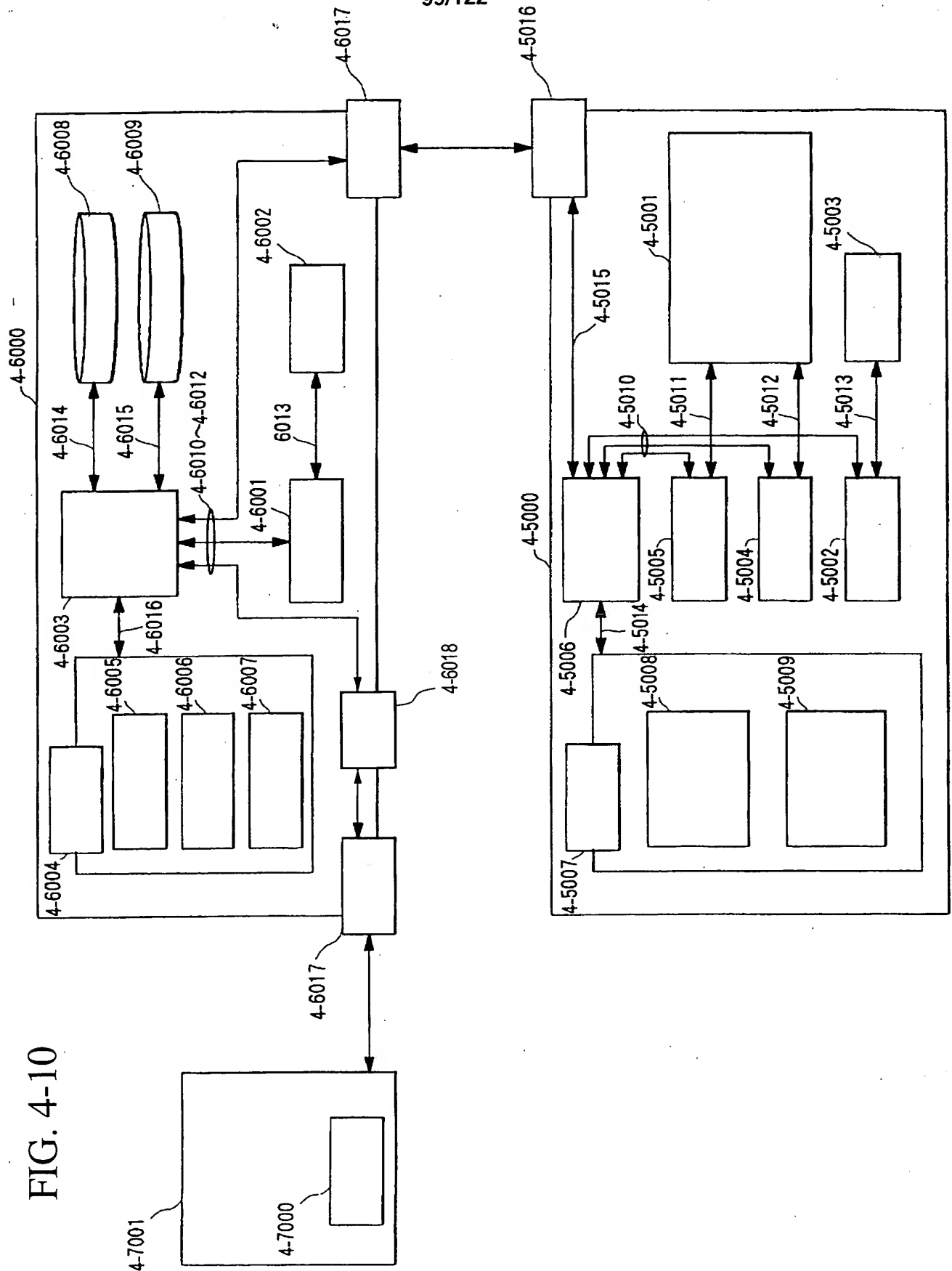


FIG. 4-11

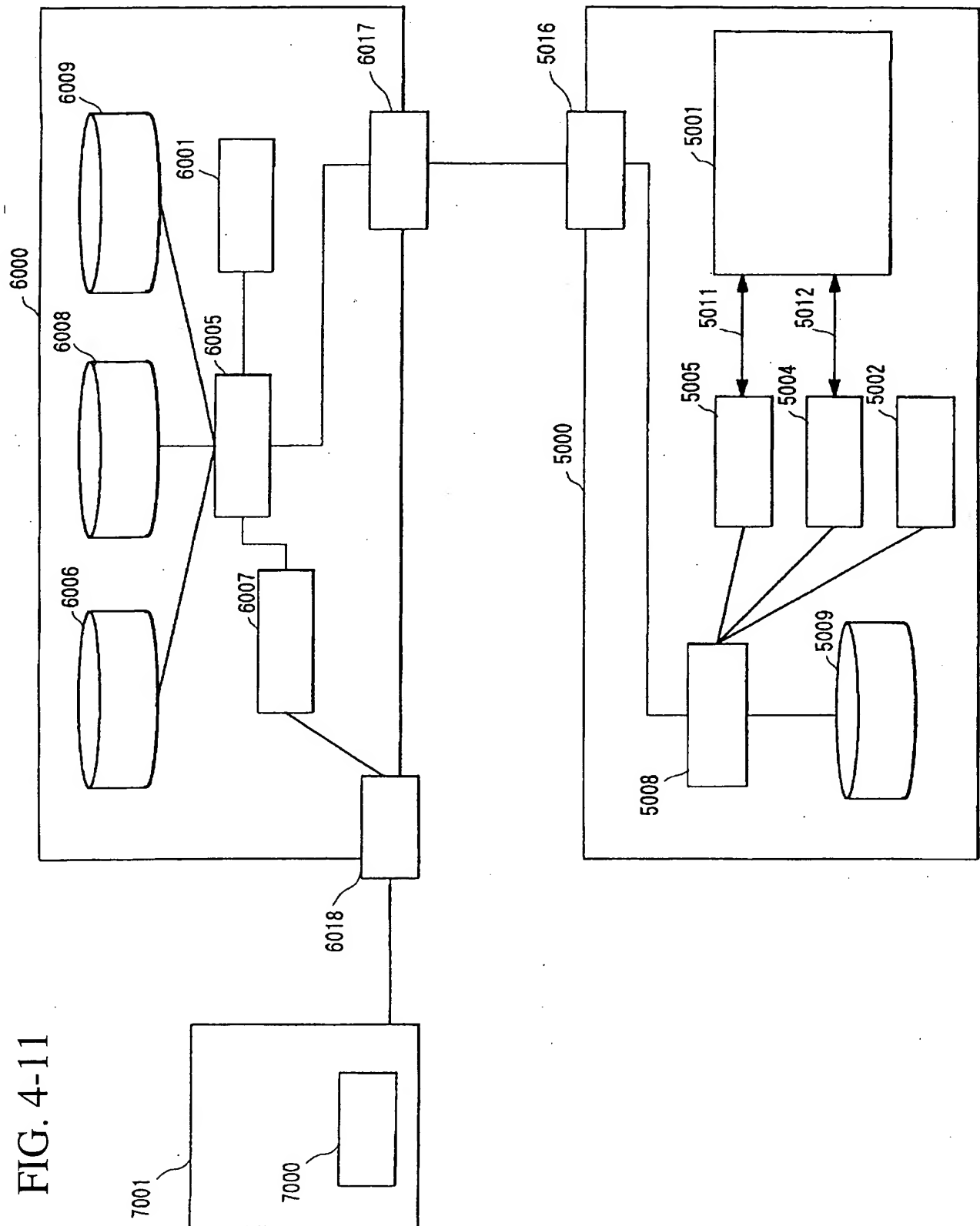


FIG. 4-12

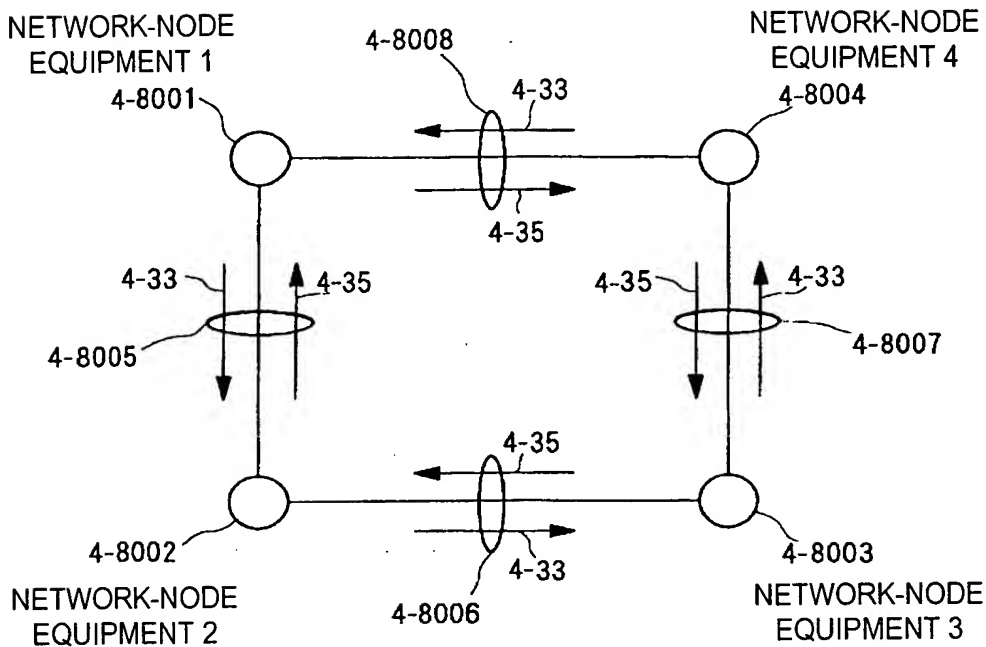


FIG. 4-13

4-9000

	1	2	3	4
1	3 2	3 3 (4-9001)	3 4	3 5 (4-9002)
2	3 5 (4-9003)	3 2	3 3 (4-9004)	3 4
3	3 4	3 5 (4-9005)	3 2	3 3 (4-9006)
4	3 3 (4-9007)	3 4	3 5 (4-9008)	3 2

FIG. 4-14

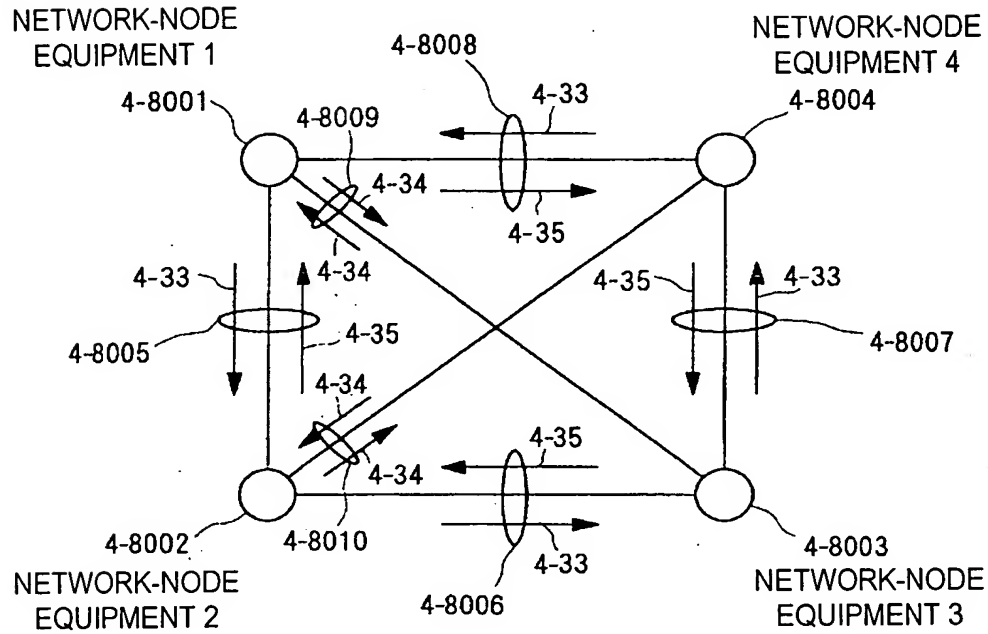


FIG. 4-15

4-9000

	1	2	3	4
1	3 2	3 3 (4-9001)	3 4 (4-9009)	3 5 (4-9002)
2	3 5 (4-9003)	3 2	3 3 (4-9004)	3 4 (4-9010)
3	3 4 (4-9011)	3 5 (4-9005)	3 2	3 3 (4-9006)
4	3 3 (4-9007)	3 4 (4-9012)	3 5 (4-9008)	3 2

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FIG. 4-16

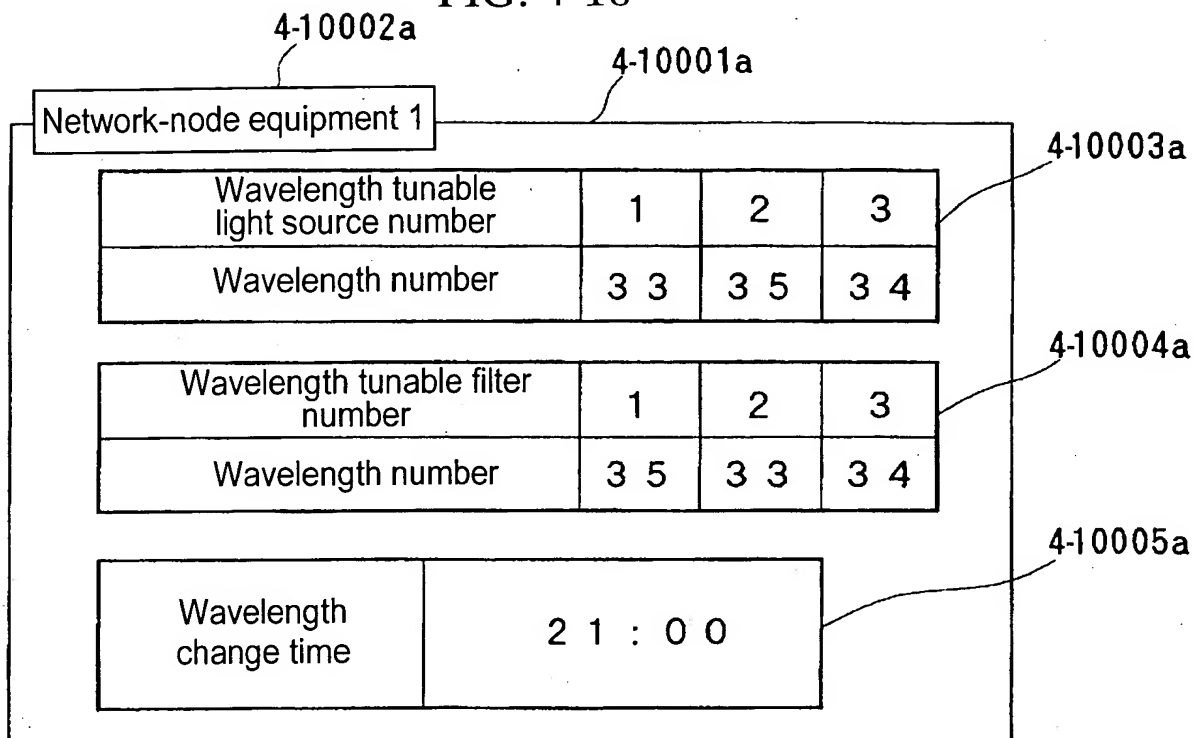


FIG. 4-17

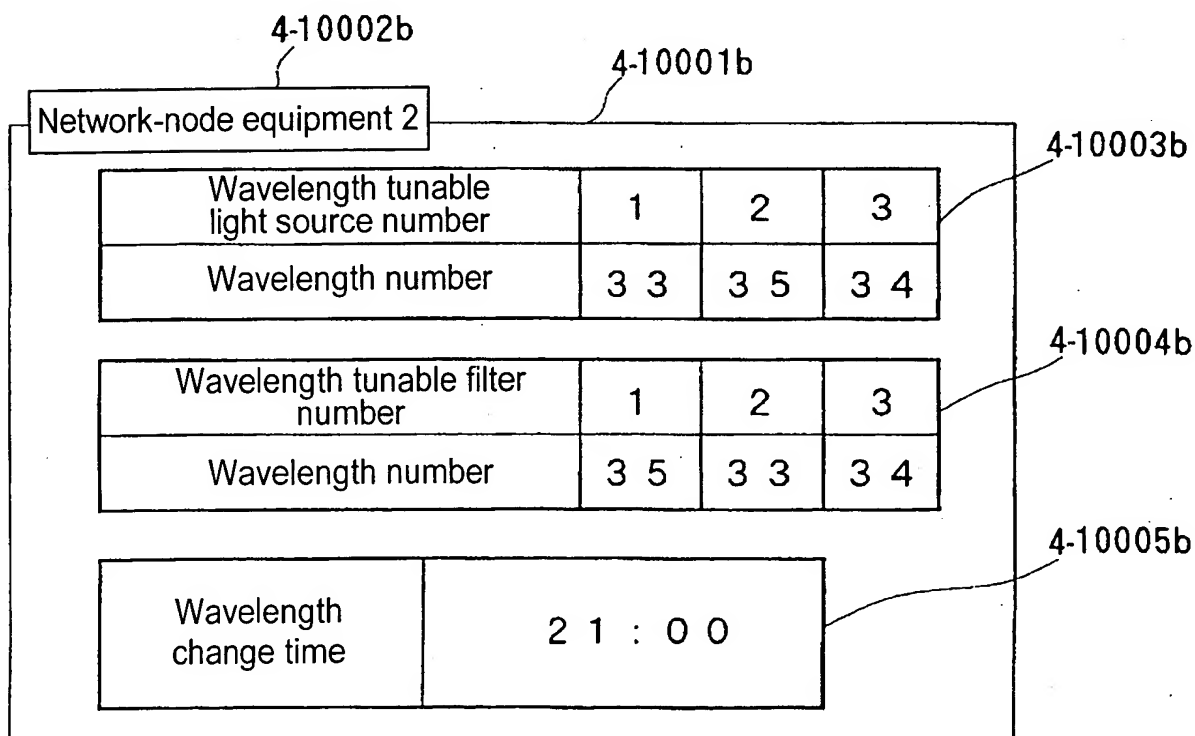


FIG. 4-18

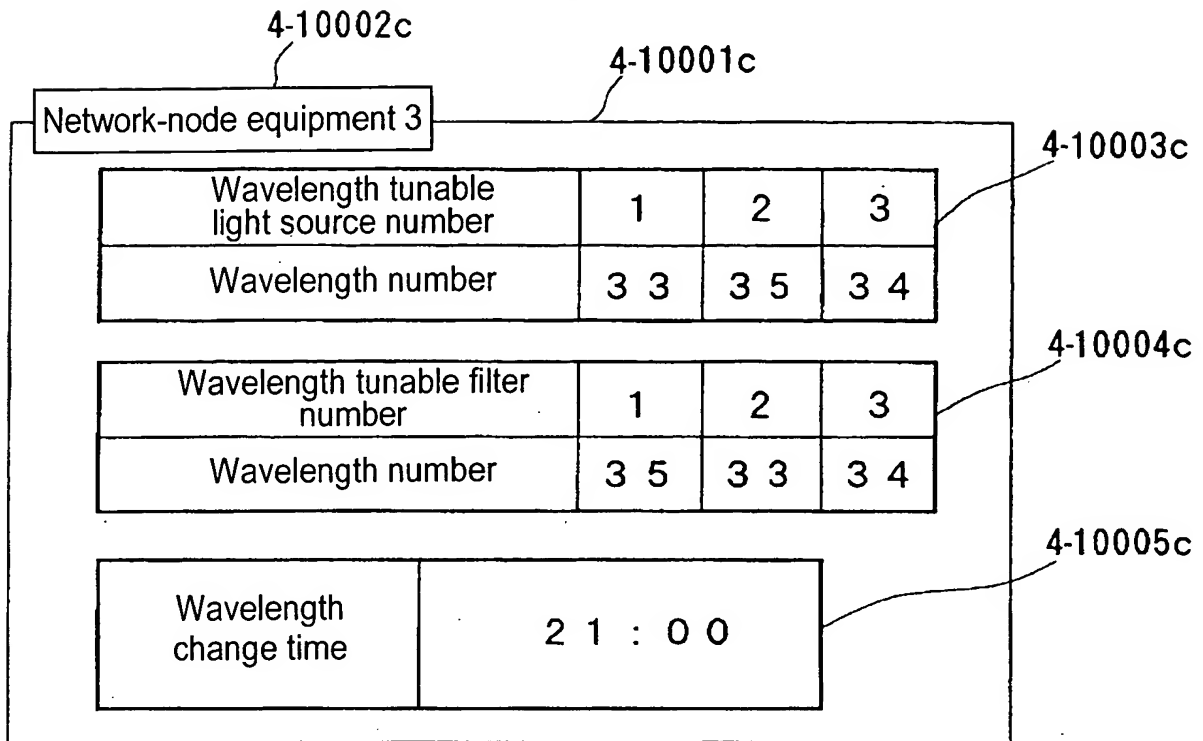


FIG. 4-19

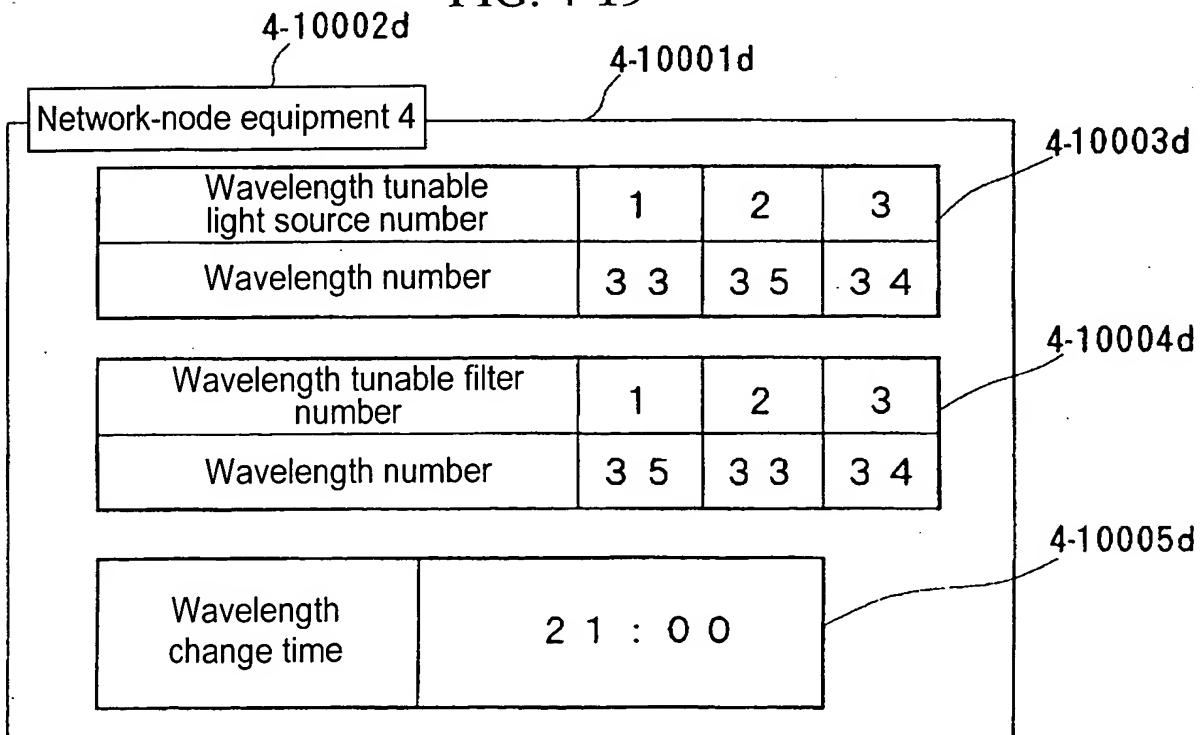
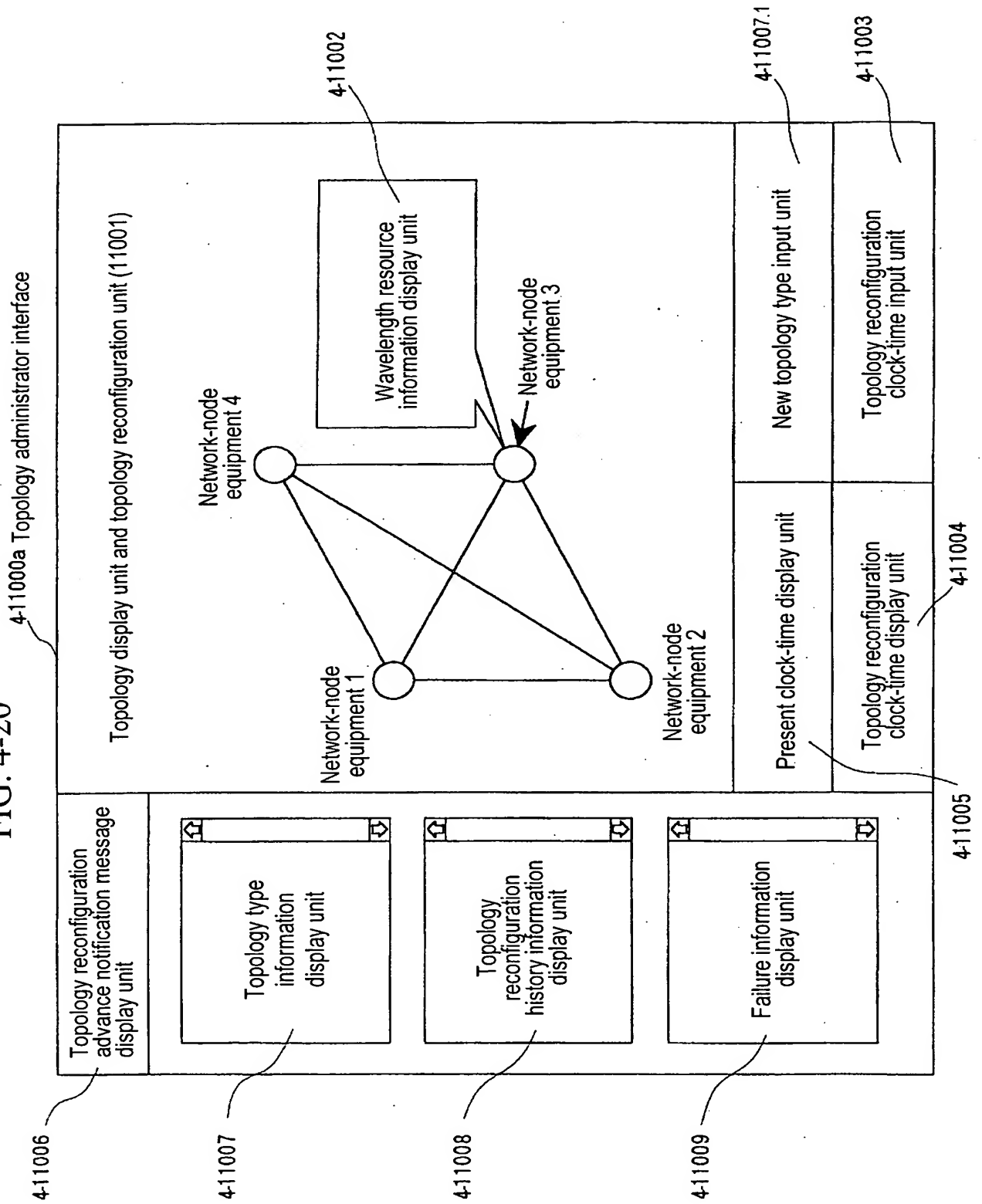


FIG. 4-20



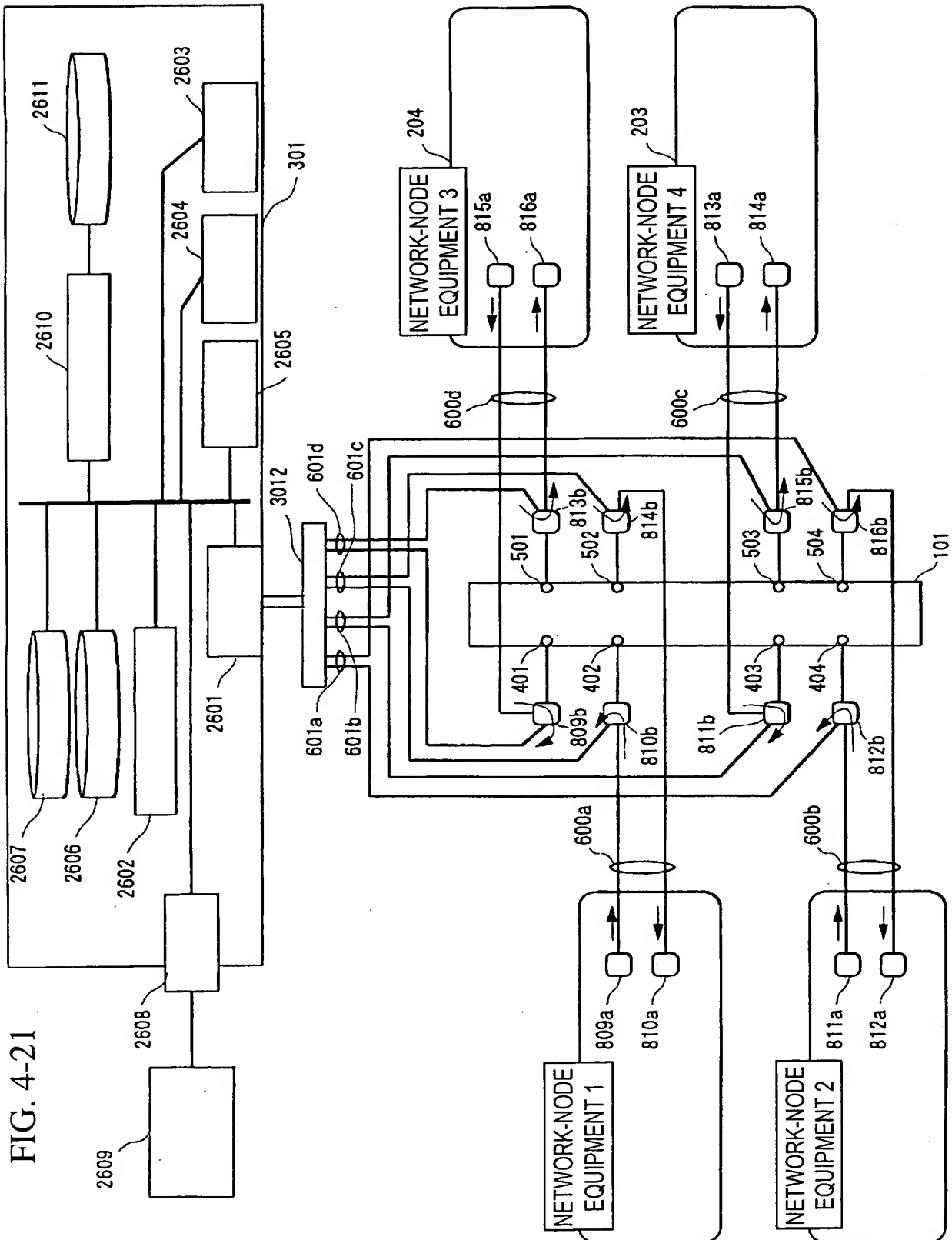
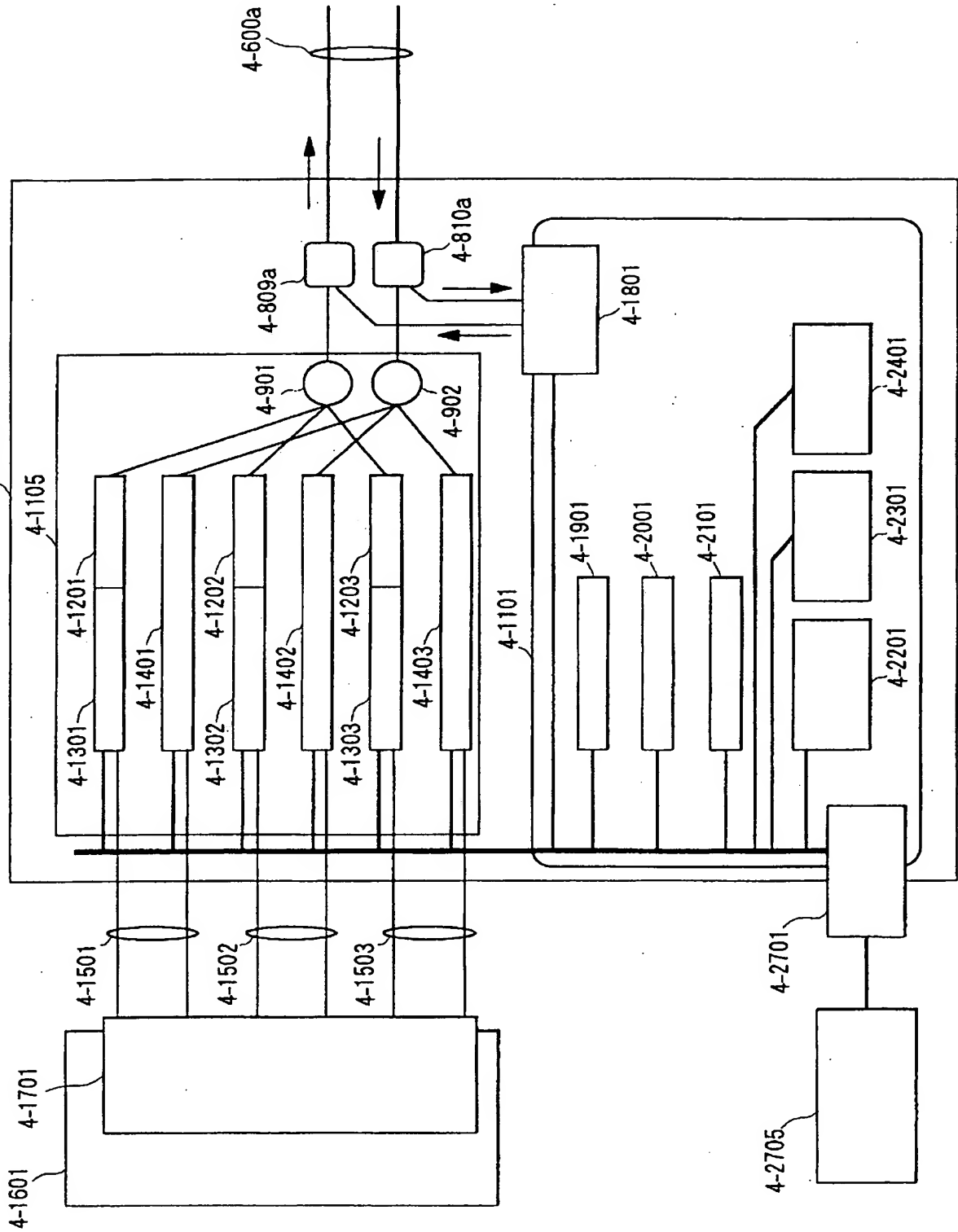


FIG. 4-22



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FIG. 4-23

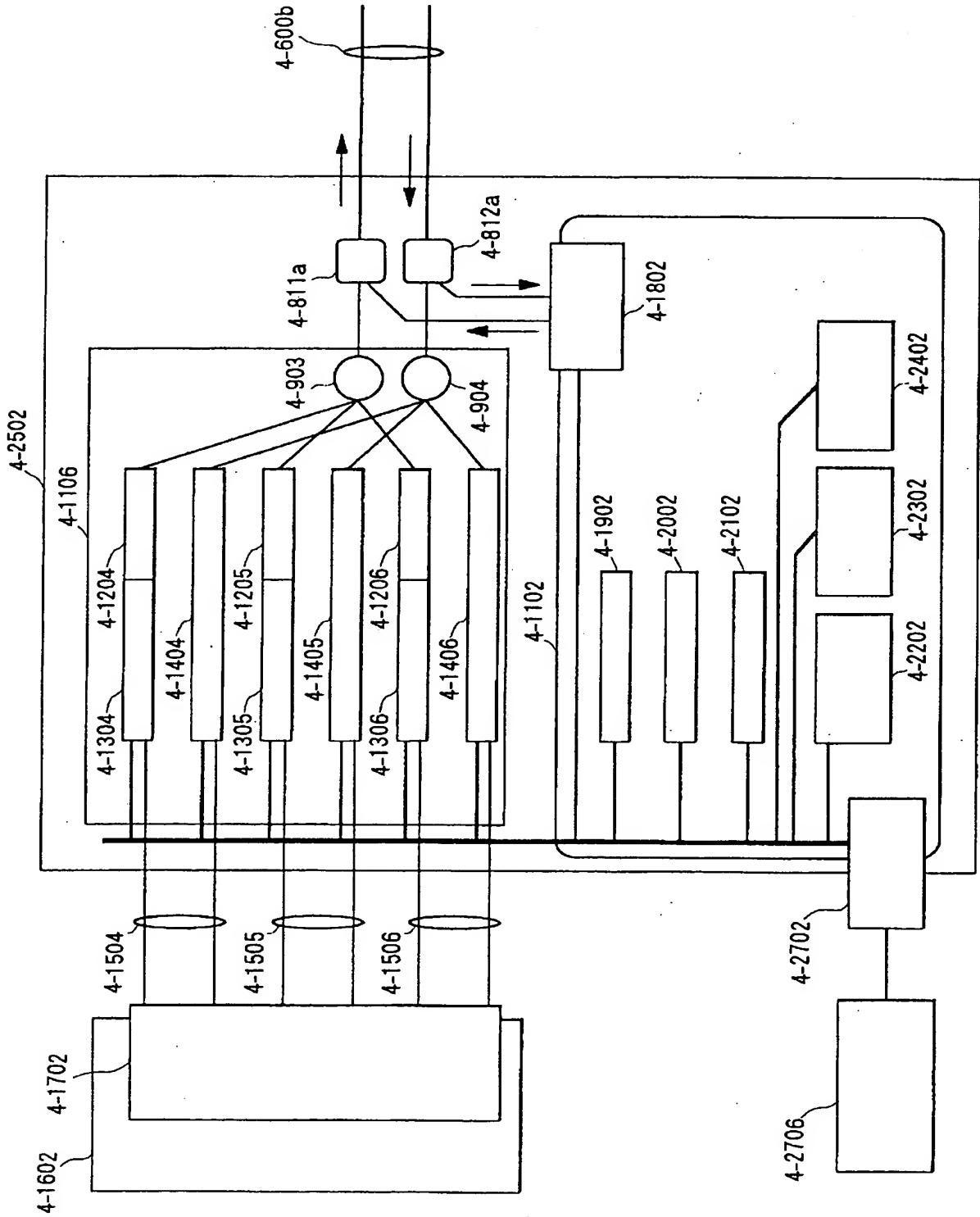


FIG. 4-24

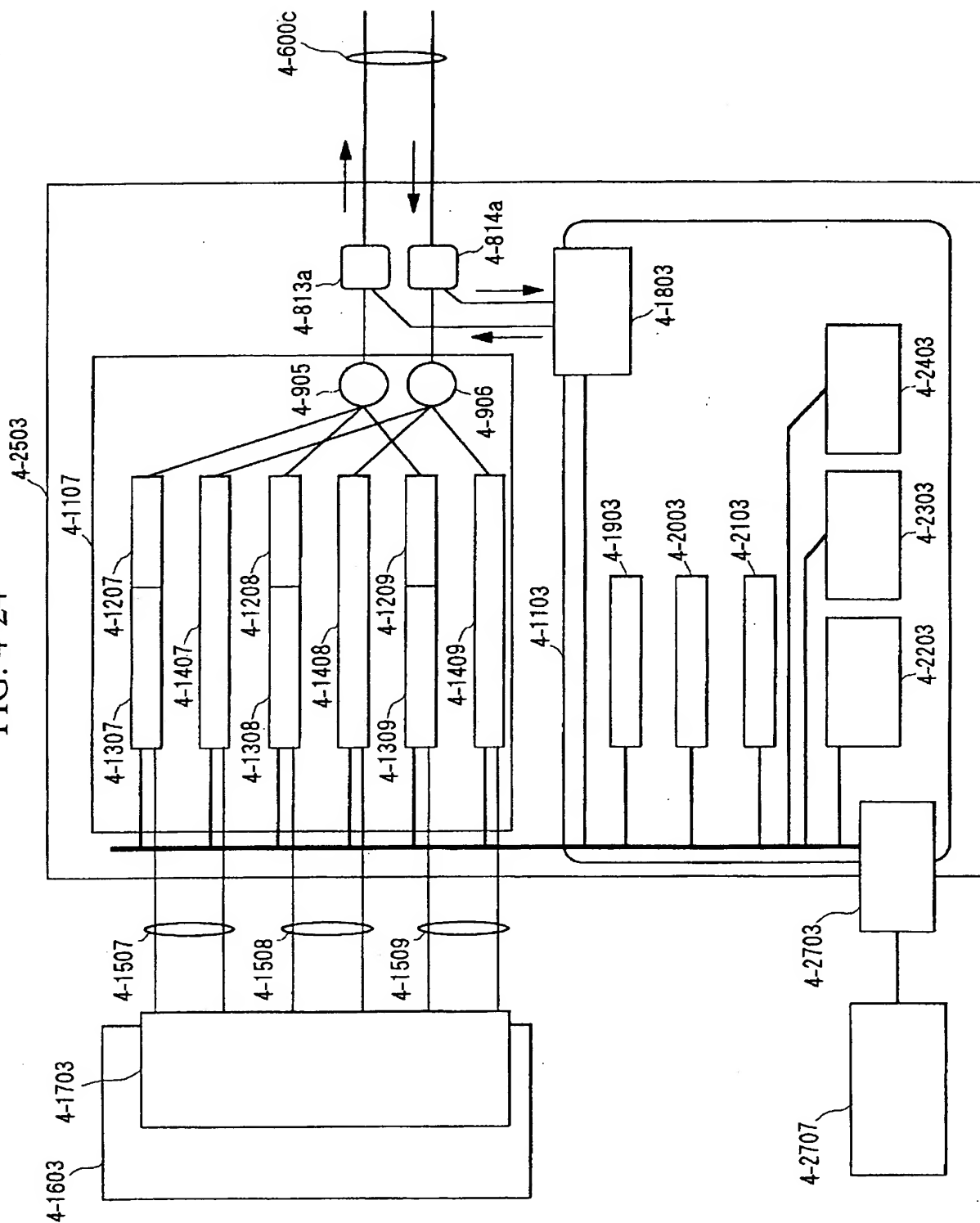


FIG. 4-25

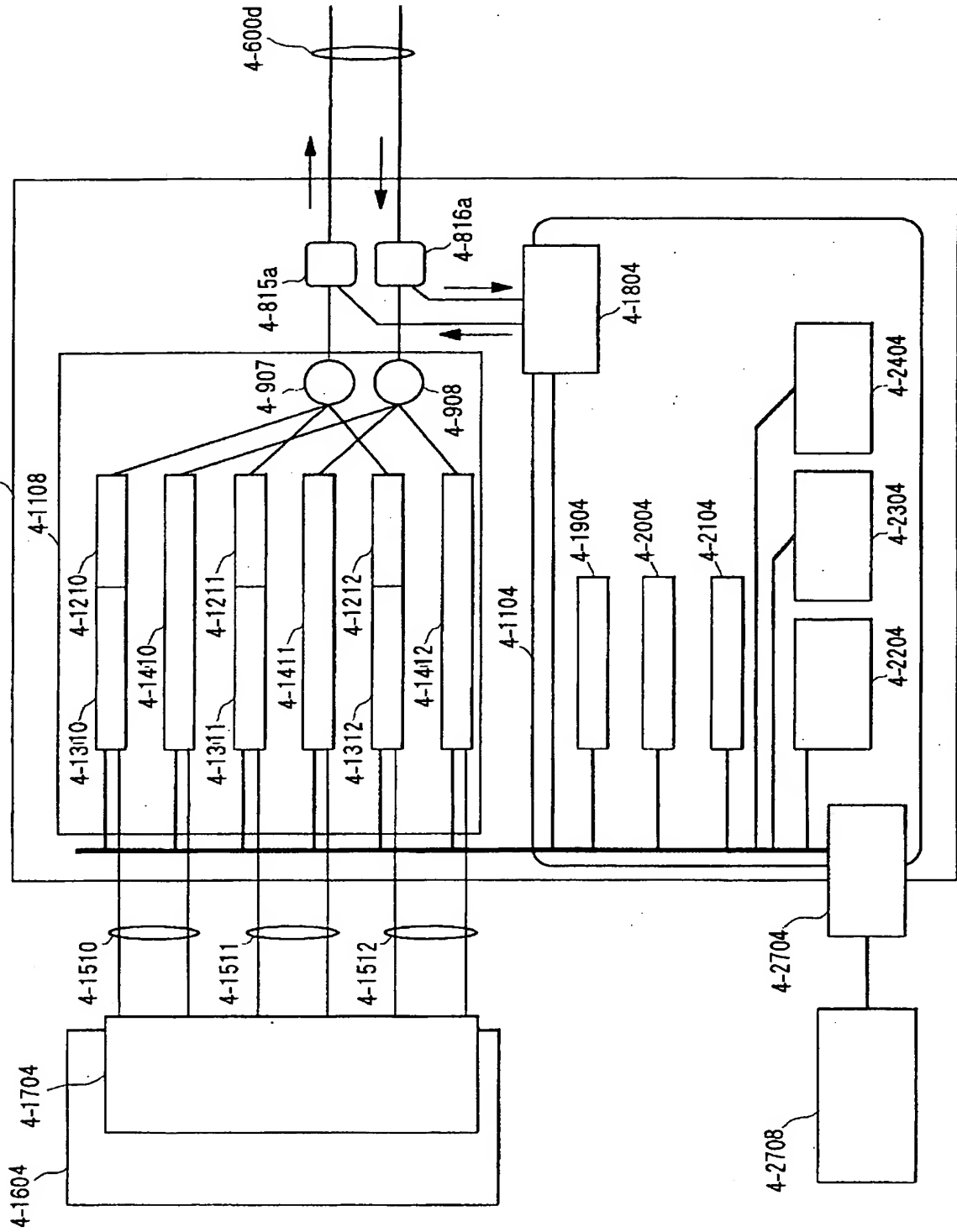


FIG. 4-26

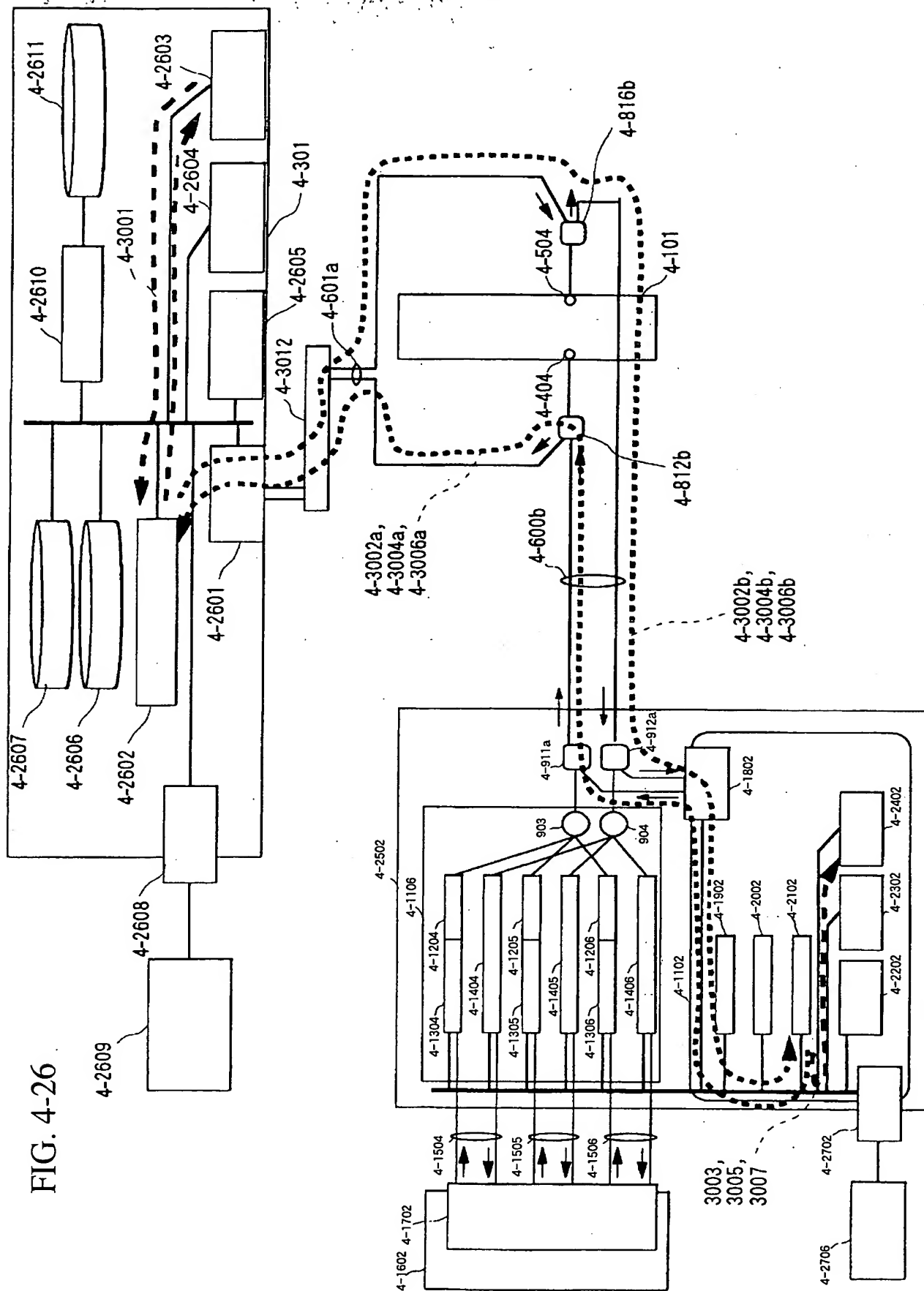
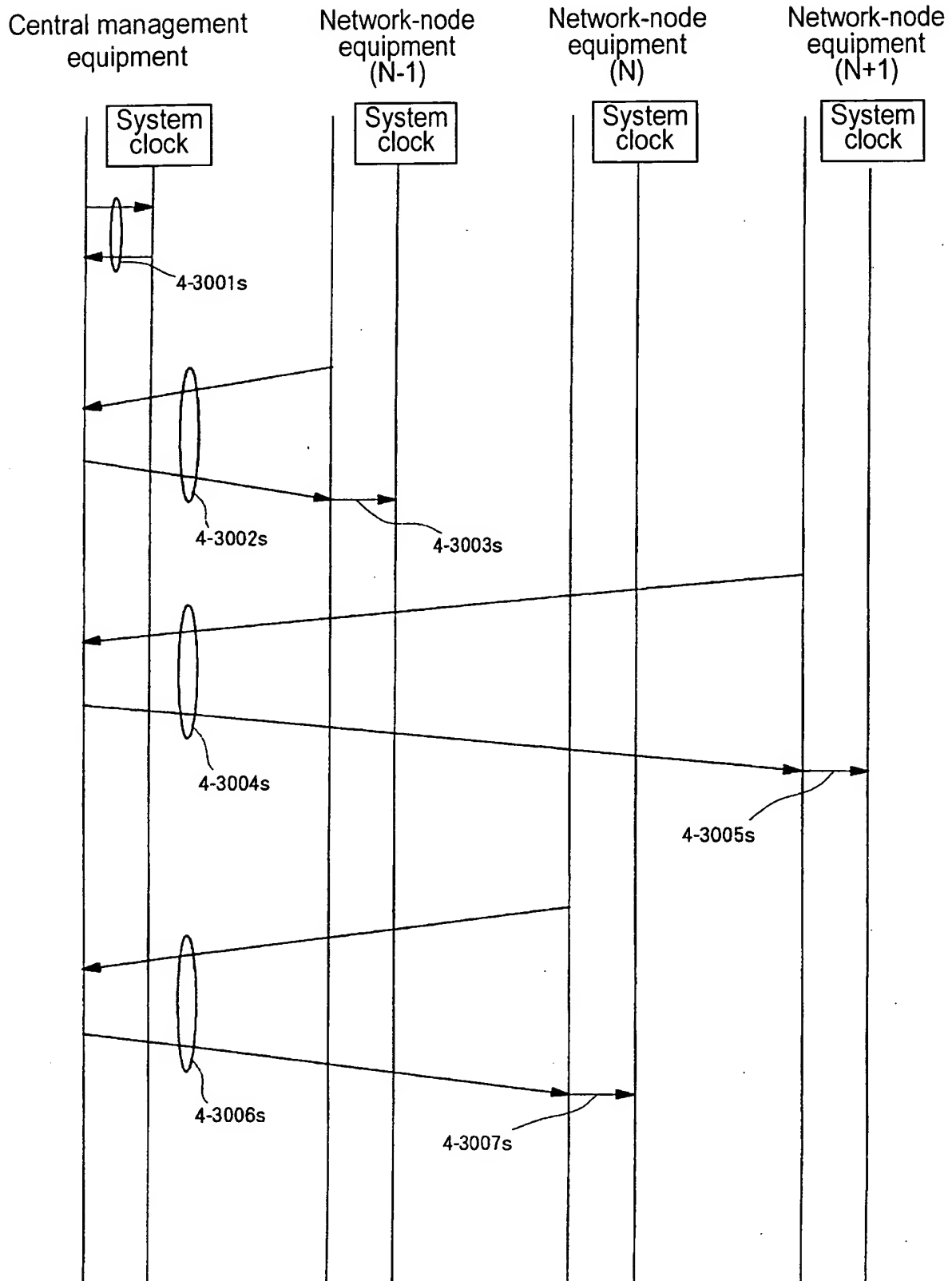


FIG. 4-27



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FIG. 4-28

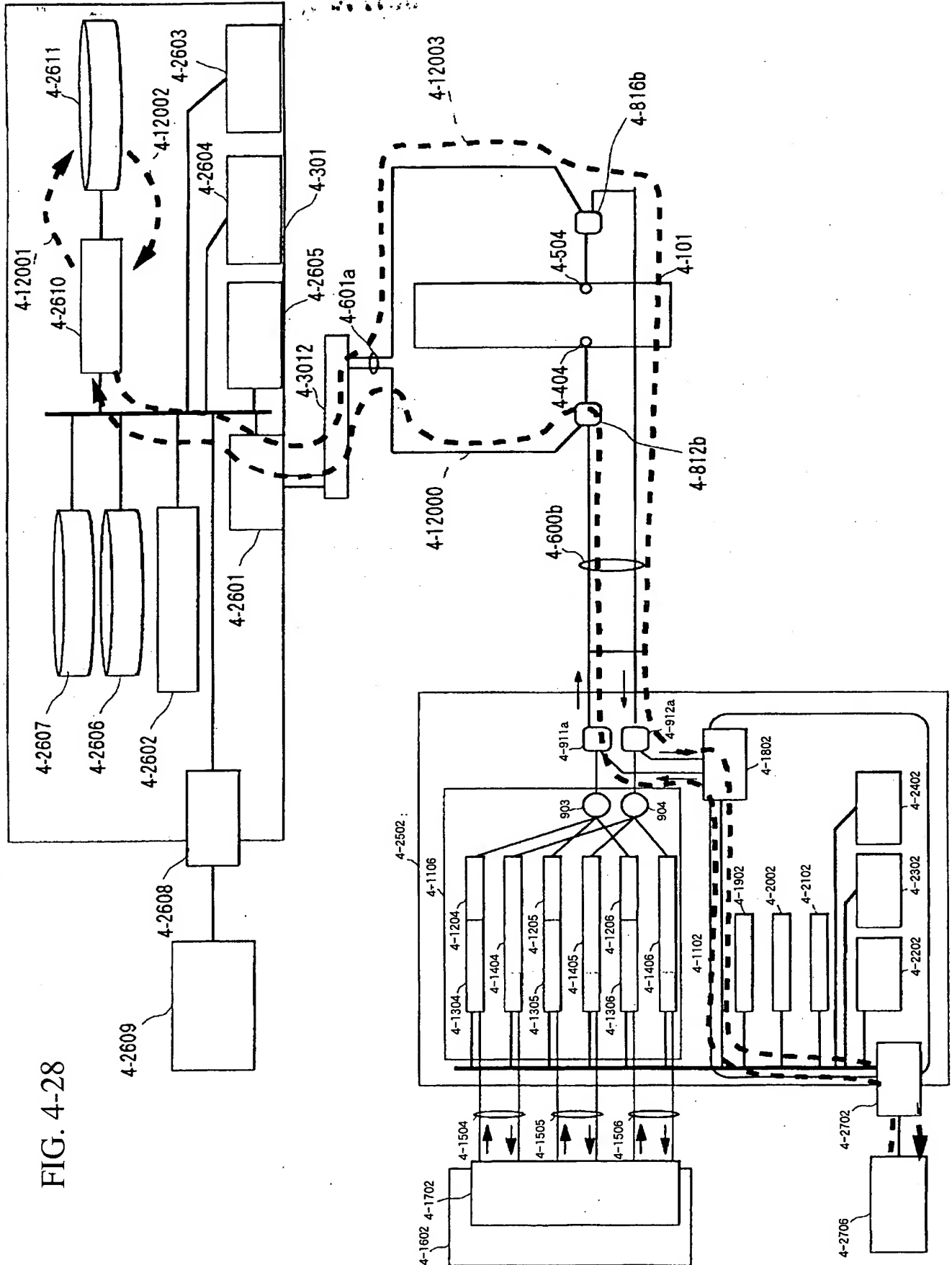


FIG. 4-29

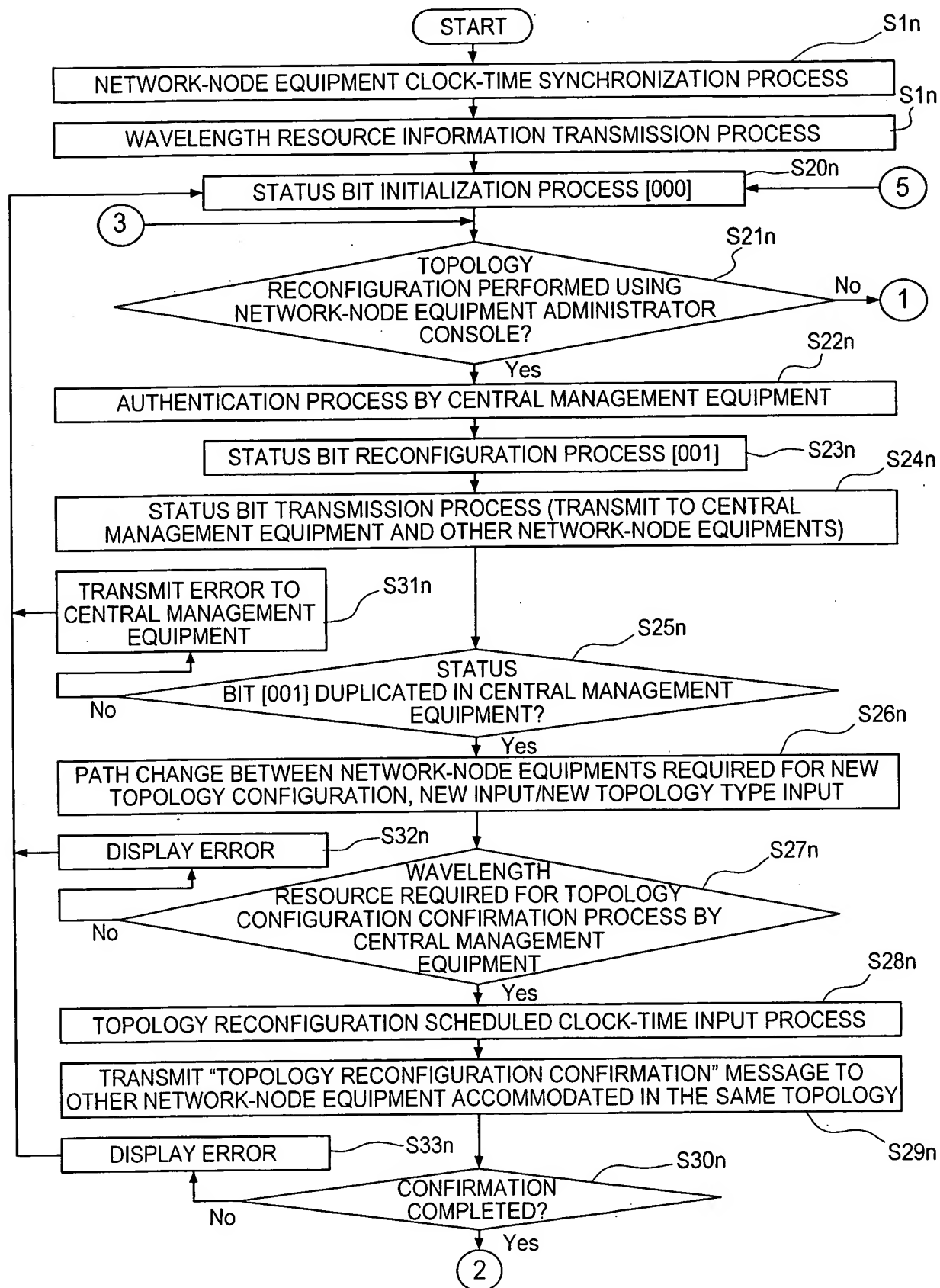


FIG. 4-30

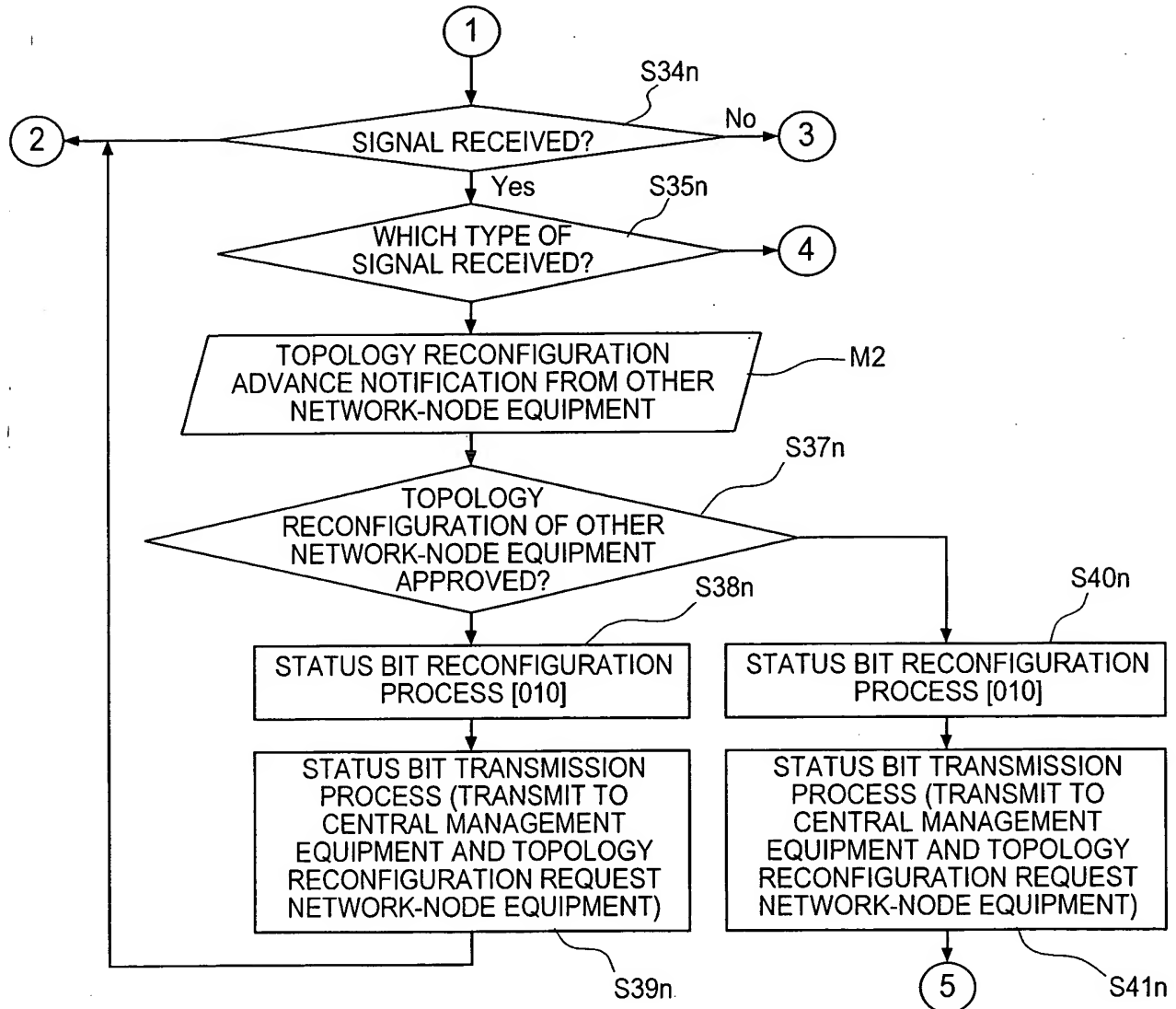
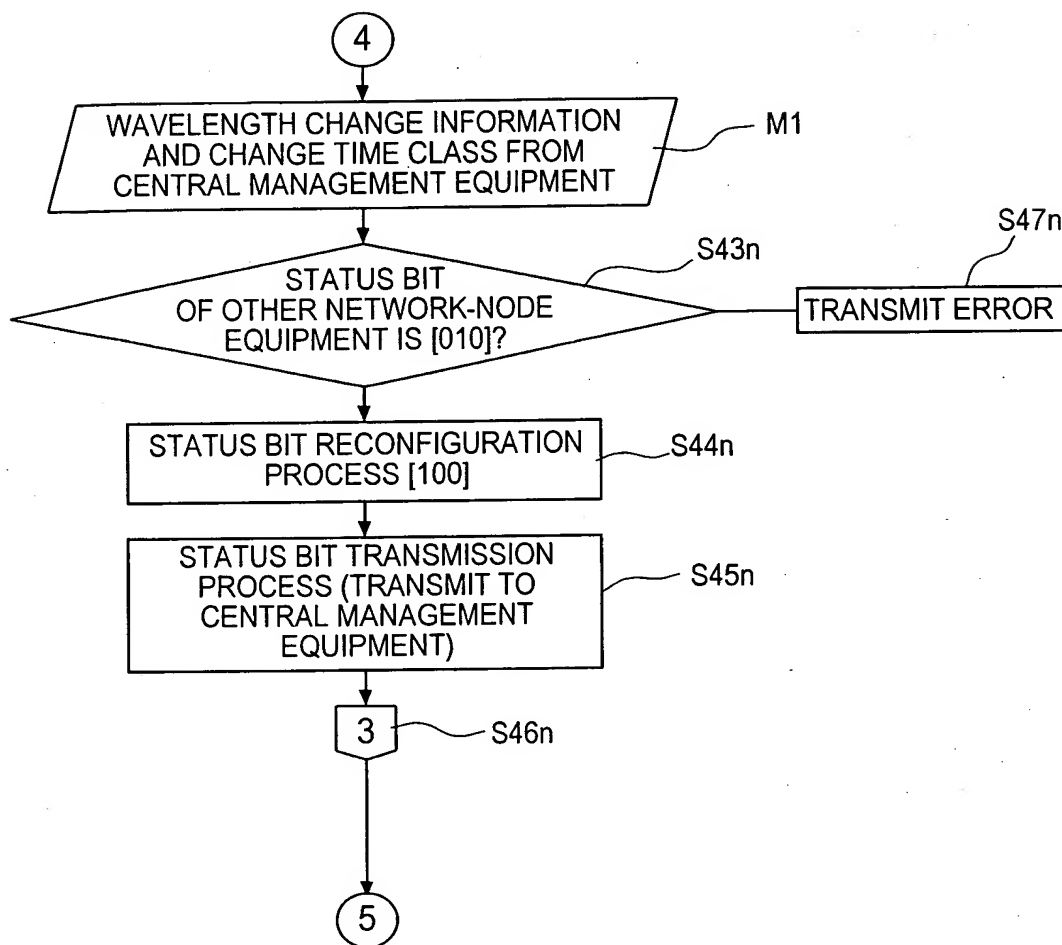


FIG. 4-31



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FIG. 4-32

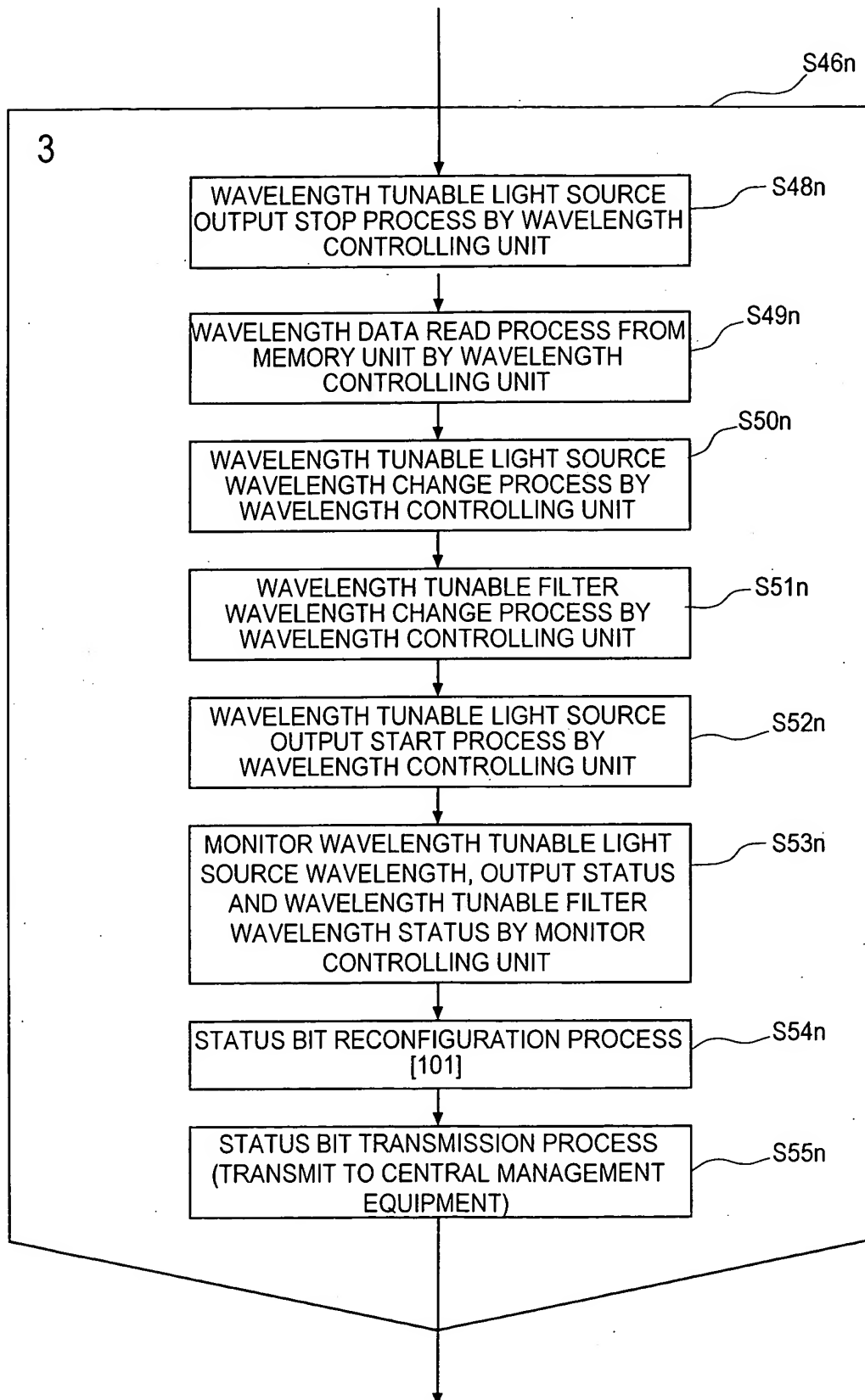
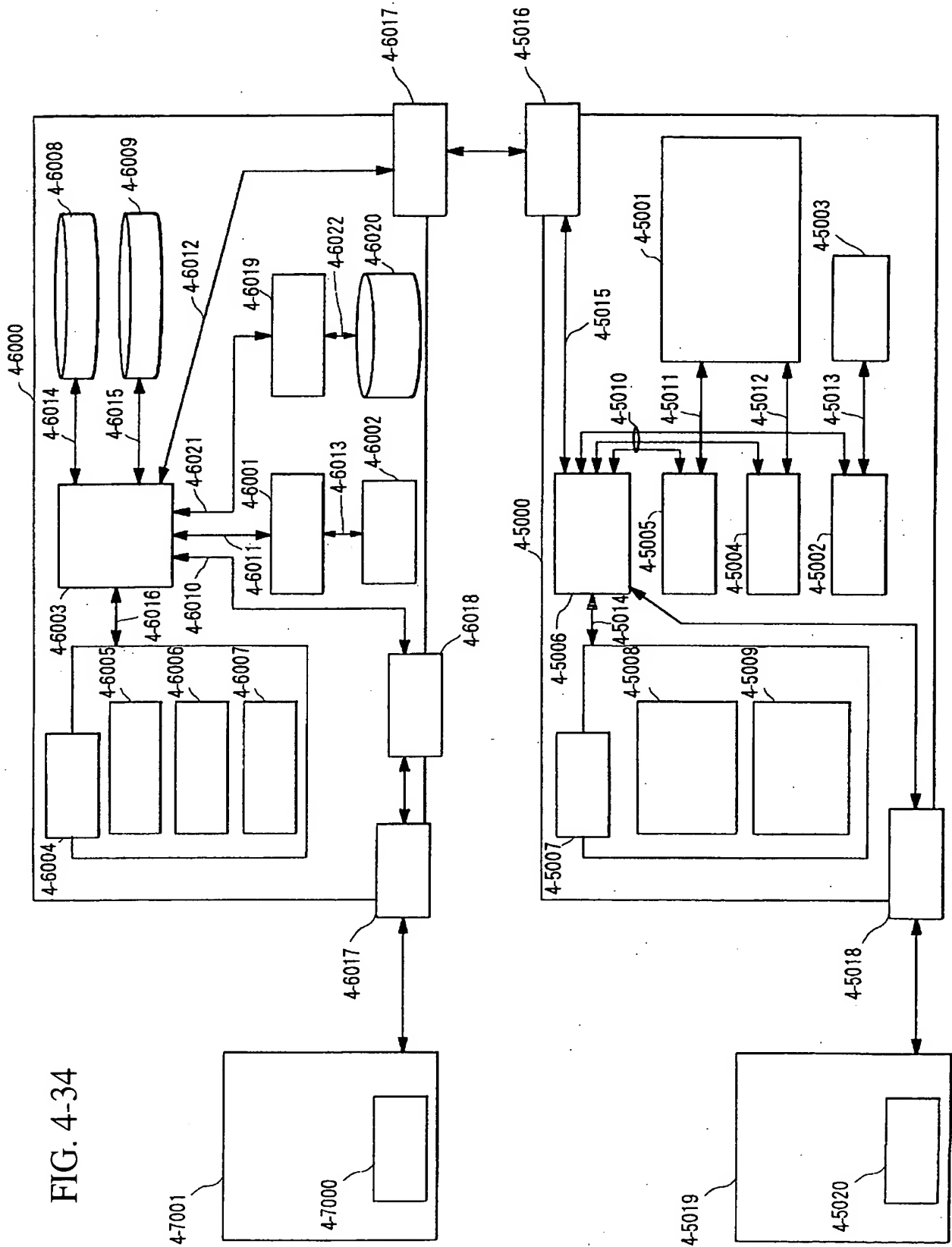
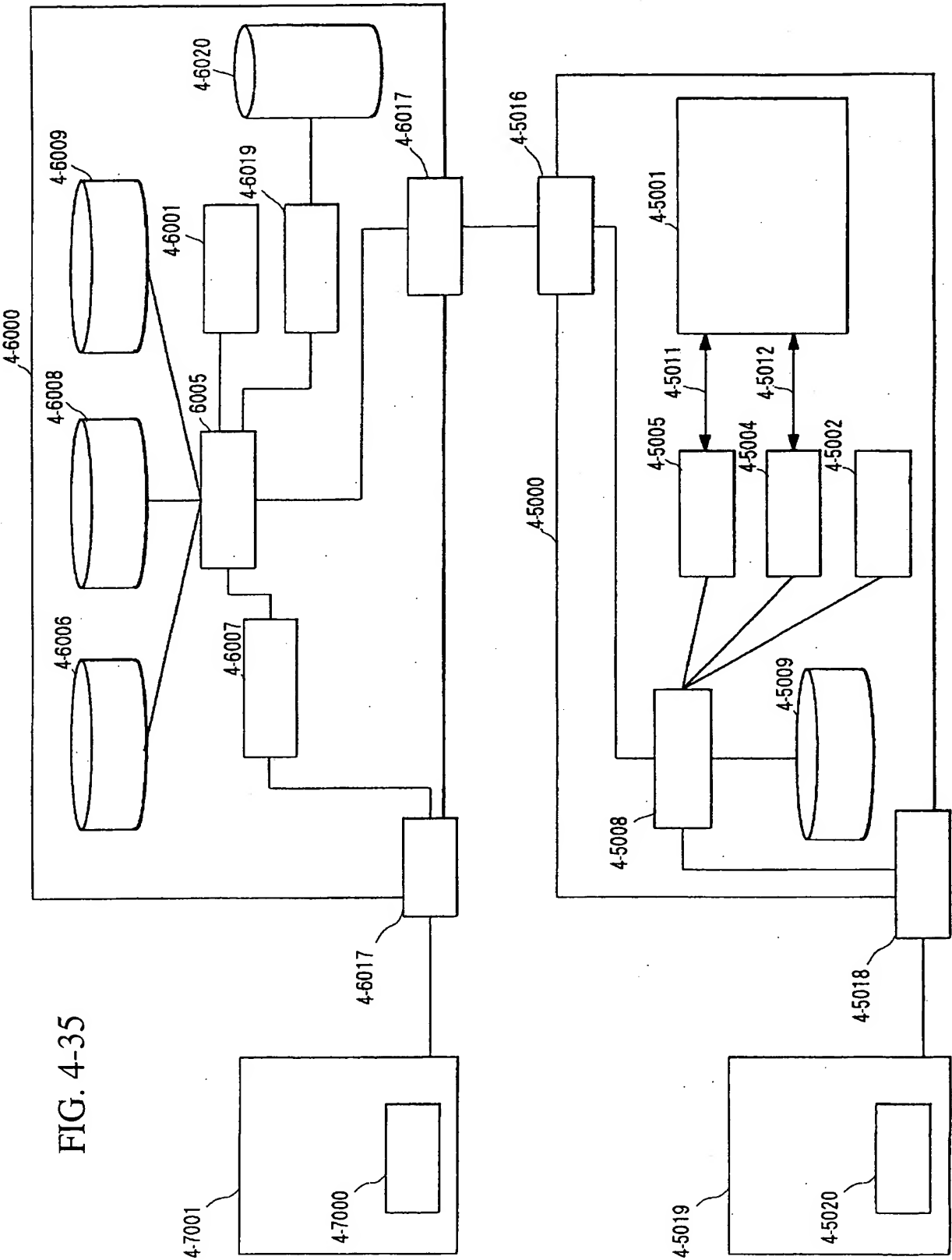


FIG. 4-33

4-12001	4-12002	4-12000
Status bits	Network-node equipment status	
000	Initial status	
001	Topology reconfiguration reserved status	
010	Completion of acceptance of topology reconfiguration request from other network-node equipment status	
011	Rejection of topology reconfiguration request from other network-node equipment status	
100	Completion of reception of wavelength and reconfiguration clock-time class status	
101	Completion of reconfiguration to new wavelength status	

FIG. 4-34





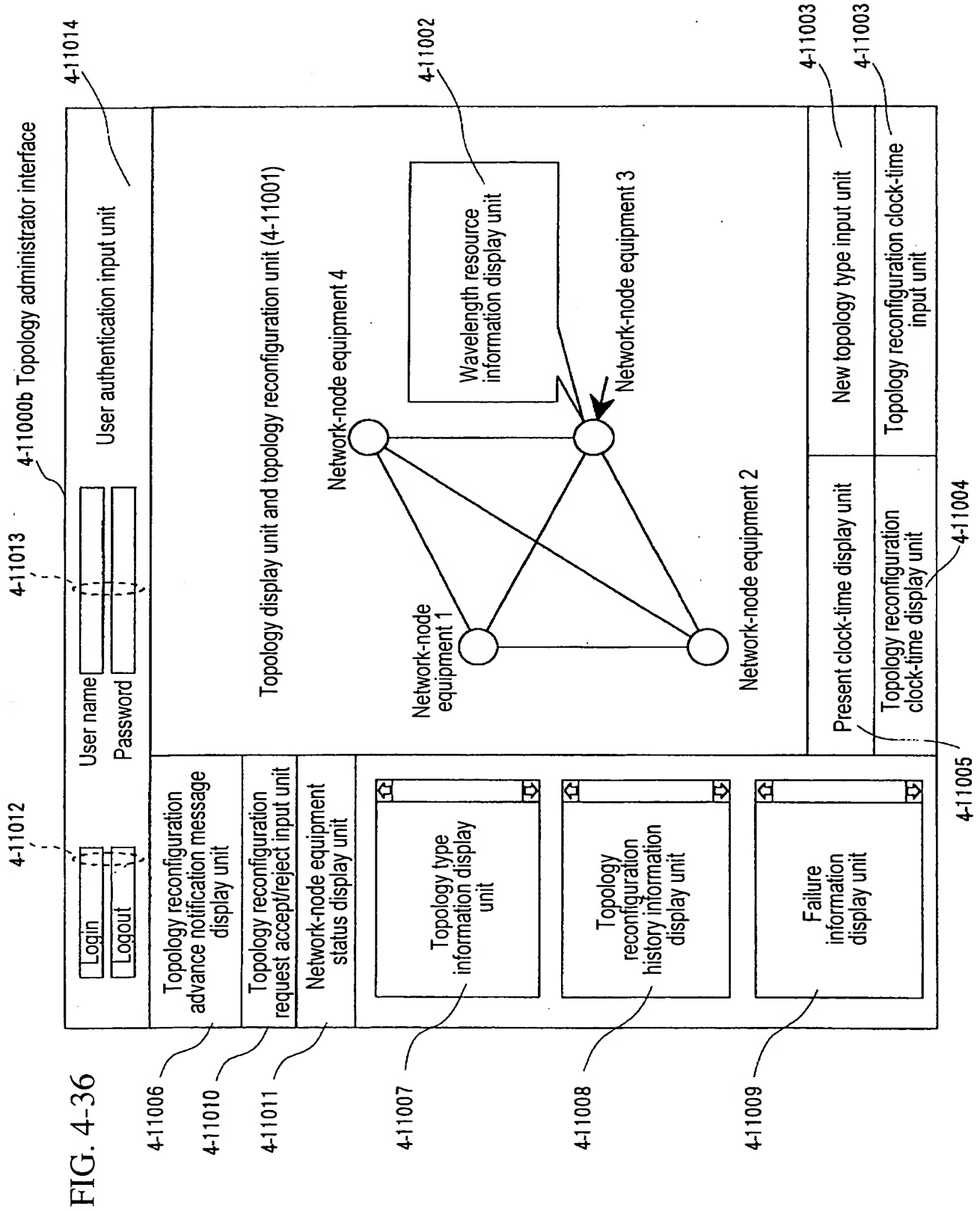


FIG. 4-37

